

APPENDIX 5 - Invitation to Tender on the Remediation, Towing and Sinking of the Kittiwake.



**“EX- USS KITTIWAKE PROJECT”
CAYMAN ISLANDS
INVITATION TO TENDER**



The Cayman Islands has embarked on a project for New Product Development in the Cayman Islands, called Ex- USS Kittiwake. The scope of this project is defined following for the tender of a bid for the artificial reefing of a ship in Grand Cayman.

Completed tenders and questions or clarifications must be submitted in writing (preferably by email) to:

Nancy Easterbrook
Kittiwake Project Manager
Cayman Islands Tourism Association (CITA)
PO Box 31086 SMB
73 Lawrence Boulevard, Islander Complex
Grand Cayman KY1 – 1205
CAYMAN ISLANDS
(345) 946-5658 Phone
(345) 946-5659 Fax
divetech@candw.ky

With cc:
ken@cita.ky
Scott.slaybaugh@gov.ky

Deadline for receipt of tenders:	February 15 th , 2005
Selection of successful Contractor:	February 28 th , 2005
Joint visit to ship for final specifications on remediation work and contracts signed	March
1 st – 4 th , 2005 (or dates mutually agreed upon by both parties)	

Tenders may be sent electronically by email, on CD or by fax or mail. All responses must be received by the due dates noted above.

PARTNERS:

This project is a joint venture between private sector, represented by the Cayman Islands Tourism Association (CITA) and the Cayman Island Government, Ministry of Tourism, Environment, Development and Commerce, and the Cayman Islands Department of Tourism.

Kittiwake Project Overview:

The Cayman Islands has been accepted and approved by MARAD in 2004 as the pilot project for the donation of a ship(s) for artificial reefing purposes to a foreign Government.

The Cayman Islands manages a strong dive/snorkel tourism product, with approximately 80% of visitors coming from the US. We have an active project called “Kittiwake” which is a joint public – private sector initiative to stimulate our dive/snorkel tourism market by creating a new visitor attraction by way of a wrecks/artificial reef. While Cayman has numerous natural shallow reefs and walls, and several existing wrecks/artificial reefs, our country is also a mature destination for divers and snorklers. We believe that the creation of a new artificial reef will help to invigorate our tourism industry, whilst at the same time providing new reefs and habitat for marine life, and some environmental relief to some of the more popular dive/snorkel sites in Cayman.

We have several very popular areas for tourists to visit, such as Stingray City and some of the shallow reefs near our main Harbour (George Town Harbour). These areas are currently being stressed due to the large number of visitors that are frequenting them. It is our intent to actively market the new wreck/reef as an alternative tour that divers and snorklers can visit, which will assist in spreading our visitors over a larger number of water-based attractions.

Representatives of all appropriate Government departments in the Cayman Islands have been consulted throughout this project, including the Ministry and Department of Tourism, Department of the Environment, Port Authority, Shipping Registry, Public Works and Customs. These departments will continue to provide input, management, guidelines and oversight throughout the preparation and sinking of the wreck/reef. Funding for the project has been contributed by the Ministry and Department of Tourism along with the Cayman Islands Tourism Association (CITA), and has been supported by our media partners and both individual and Corporate sponsors. The private sector businesses are organized through the CITA, a non-profit volunteer organization with over 240 business members in watersports, diving, fishing, snorkeling, hotel, condominiums, restaurants, transportation and allied sectors of tourism. We are working cooperatively to accomplish this project. CITA has agreement from all watersports members to participate in ongoing funding for future maintenance, future wrecks/reefs and diver safety needs being maintained on the wreck/reef.



The Guy Harvey Research Institute (GHRI) has committed to initiate a long-term monitoring program on the wreck/reef, with the intent of providing additional scientific data on colonization, bio-diversity and the effects on the surrounding fringing reefs. It is the intent of the Kittiwake Project team to have the Cayman

Islands Government designate the artificial reef as a Special Management Zone or Marine Protected area.

While we were considering alternative ships, since Hurricane Ivan hit Grand Cayman in September of 2004, our desire to move this project forward rapidly has caused us to choose a ship that we believe will be 'quick and easy' to remediate on a relative scale. We are in receipt of the list of ships from MARAD that are currently available for disposal for reefing projects and have selected 1 ship that is appropriate given overall length, structure, history and suiting our interests. Our process will be to work with the selected Contractor to complete all cleaning and remediation activities in the US, with only final diver safety cutouts and sinking being completed in the Cayman Islands. Options for remediation work outside of the US will be considered as long as all export licenses and US EPA sign-off have been obtained and are included in your scope of work and cost proposals. Remediation and disposal of hazardous materials in the Cayman Islands is not an option.

The ship that the Cayman Islands are requesting a response to our tender on is:

USS/USNS Kittiwake 251' Sub Rescue ASR-13 USS *Kittiwake*

- Chanticleer Class Submarine Rescue Vessel
- Displacement: 2,045 tons (full load)
- Length: 251'4"
- Beam: 42' Draft: 16'
- Speed: 14.5 knots (max); 10 knots (econ)
- Armament: 2 3"/50 DP, 8 20mm, 4 DC tracks
- Complement:
- Diesel-electric engines, single screw, 3,000 h.p.
- Built at Moore, Savannah and commissioned 1944

The USS Kittiwake is currently located on anchor in the James River Reserve Fleet, Norfolk, VA. Members of the Kittiwake project team visited the James River Reserve Fleet in July 2004, and developed a reasonable knowledge of the state of the USS Kittiwake, its diver attractiveness, remediation work required, and a general scope for environmental concerns.

The remediation of the USS Kittiwake will be to the standards of the Cayman Islands Department of the Environment. Our standards are based primarily on Environment Canada's *Clean-Up Guidelines for Ocean Disposal of Vessels* and the US EPA's *Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs*. Your response to this Invitation to Tender must be in sufficient details to allow our evaluation of all needs for the environment and diver safety issues being met. Detailed particulars for any variations will be discussed with the successful Contractor awarded this contract.

The Cayman Islands is prepared to take title to the USS Kittiwake at the transfer of title time, as dictated by MARAD. Proper insurance must be in place from the Contractor to insure that the investment of the Cayman Islands is intact for any disasters or problems and that all liability, hazardous material handling and worker safety issues are fully covered and in accordance with acceptable standards.

This is an extremely high profile project, due to many reasons including it being a pilot project for MARAD with a foreign government, and in general the amount of public attention that the Cayman Islands receives on most projects.

We sincerely appreciate your consideration and time in working with the Cayman Islands on this project, and look forward to receiving your response to our Invitation to Tender.

Yours truly,
Cayman Islands Tourism Association

A handwritten signature in cursive script, appearing to read "N. Easterbrook", is displayed within a light blue rectangular box.

Nancy Easterbrook
Kittiwake Project Manager

cc. CITA - Kittiwake Project Team
Ms. Zoe Washnis, Maritime Administration (MARAD)

TENDER REQUIREMENTS:

Invitations to Tender are detailed following, segmented into the following 3 major phases:

- 1. Cleaning & Remediation of the USS Kittiwake**
- 2. Towage from the cleaning yard to Grand Cayman**
- 3. Sinking of the USS Kittiwake**

For clarification purposes, you are referred to as the “Contractor” in this Invitation to Tender.

Any Contractor may bid on only phase 1, 2 or 3, or may bid turnkey on the entire project. Turnkey bids must break down all costs for each phase as required. In the event that you choose to only bid on a particular phase, “NO BID” must be clearly noted in your response for that particular phase. The Cayman Islands reserves the right to select a phase of any bids and not the whole bid. The Cayman Islands reserves the right to reject all bids. The successful Contractor to perform any phases of work on the first ship is not guaranteed to be the same Contractor that will complete the work on the additional 4 ships. However, with a good working partnership being established, the additional ships may be awarded to the successful Contractor of this first Invitation to Tender.

Phase 1 - Cleaning and remediation of the USS Kittiwake

This phase of the project must include:

- a. Project Management/Supervision
- b. Complete and detailed project plan to be approved by both the Cayman Islands and MARAD including plans for the disposal/approvals to export all hazardous materials in the US prior to exportation
- c. Facilitating ship inspections as needed from time to time by the Cayman Islands Department of the Environment, Cayman Islands Shipping Registry/Surveyors, KITTIWAKE Project Team, and MARAD
- d. US EPA reporting, sign-offs, all required documentation completed and filed, copied to the CITA
- e. Cleaning/remediation of the USS Kittiwake to the standards of the Cayman Islands Department of the Environment, which are based primarily on Environment Canada’s *Clean-Up Guidelines for Ocean Disposal of Vessels* and the US EPA’s *Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs*
- f. Asbestos Abatement & Disposal must be accomplished
- g. PCB Abatement & Disposal must be accomplished
- h. The scope of work must include removal and disposal of all loose flotsam, lagging, overhead wiring, carpet, floor tiles, exfoliating paint, thin sheet metal, crew cabin walls (as appropriate) and other materials that would create either diver safety concerns or become loose debris once sunk, thereby creating environmental hazards to corals reefs and marine life and/or divers. Any flotsam that is considered a ‘low’ potential for becoming detached should be clearly identified as remaining onboard the USS Kittiwake.
- i. Hull cleaning to remove any potential of the importation of any foreign marine species to Cayman waters. This task must be accomplished as close as practical (no sooner than 3

weeks) prior to departing for Cayman waters. This provision may be waived/modified should your response involve remediation of the USS Kittiwake in Caribbean waters with the same marine flora and fauna as Cayman

- j. Diver safety cutouts and readiness of the USS Kittiwake for sinking, except any cutouts that would prevent water-tight integrity for towage to Cayman. This latter issue will be dealt with in the Cayman Islands. It is the desire of the KITTIWAKE team that the USS Kittiwake will be opened up completely with no/minimal sealed compartments, with a view towards long-term diver safety and environmental concerns. As such, diver access and exit cutouts must be placed approximately every 50 feet/ 15 meters both vertically and horizontally across the USS Kittiwake. Exceptions to this can be made if appropriate and recommendations for diver safety cutouts are solicited
- k. For the purposes of creating an interesting dive for divers, as much main and ancillary equipment/machinery as possible must remain on board the USS Kittiwake, so long as diver access and safety concerns are met. Please identify in your response any engines, ancillary equipment/machinery or other substantive materials that you propose to strip/remove from the USS Kittiwake. It is not a requirement of the Cayman Islands that engines/winches/generators be removed from the USS Kittiwake. The air storage chambers and recompressions chambers should be left intact. Equipment/machinery that could be removed which has a substantive scrap value, must be identified and have a value placed on it
- l. All machinery, engines, ancillary equipment, including filters, sumps, valves and associated pipe work must be grease/lube/oil/fuel free. All void spaces and cofferdams must be inspected and supporting documentation provided to indicate that they are free of all substances likely to cause environmental pollution or contamination. Specific recommendations on copper removal are requested. Opening up of the air bank storage containers and chambers for flooding and diver access is required
- m. Lead ballast is an issue that we require your recommendations on, whether to leave it intact with justification for this or remove lead and the associated costs of this task
- n. All tanks aboard the vessel (fuel, ballast, water, black-water, etc.) must be cleaned. Your response must indicate your proposed method of keeping these tanks from being re-contaminated. Consideration will be given to any recommendations from the Contractor towing the USS Kittiwake to Grand Cayman, as to ballast/stability requirements for the tow. Suitable treatment of any water put back into tanks must be included in your response for the destruction of any living organisms (potable water, UV treatment, Sea Kleen or similar products, etc.)
- o. Towage from the James River Reserve Fleet area to your shipyard where the USS Kittiwake will be cleaned. Please specify where you would be cleaning/remediating the USS Kittiwake and the towage company to be used
- p. Insurance on the USS Kittiwake for towage and during all times while the USS Kittiwake will be in your possession for remediation and cleaning activities. An insurance policy must be in place that protects the Cayman Islands from all loss that might be incurred due to any circumstances that might prevent delivery of an intact and fully remediated ship to the Cayman Islands. This line item must be bid separately, as the Cayman Islands may carry its own insurance during the entire project
- q. Proper insurance and compliance with OSHA, workers compensation and suitable coverage for worker safety is required

- r. Please provide copies of all environmental experts' names and licenses with respect to abatement of all HAZMAT materials

Phase 2 – Towage of the USS Kittiwake to George Town Harbour, Grand Cayman

Towage from the cleaning/remediation shipyard to George Town, Grand Cayman is required. The tug used for the towing operation must have sufficient bollard pull for the USS Kittiwake, and cover all liability, assuming no crew on board, to arrive in the Cayman Islands intact. Should any Contractor not wish to bid on towage to the Cayman Islands from the US, bids will still be accepted for other phases.

Once the USS Kittiwake arrives in Grand Cayman, it will be placed either at the Port Authority/Customs dock in George Town Harbour OR on anchor over the selected sinking site for a number of days. Both of these locations have sufficient draft for the USS Kittiwake. Safe access to and from the vessel (gangway, lighting, etc.) will also be required, as identified in Phase 3.

Once title to the USS Kittiwake is transferred to the Cayman Islands from MARAD, the USS Kittiwake will no longer be registered. Registration of this particular ship with the Cayman Islands Shipping Registry is not required in the Cayman Islands, so no load-line exemptions will be required.

This phase of the project must include:

- a. Project Management/Supervision
- b. Suitable tug with necessary bollard pull and range and with sufficient reserves for a tow between the cleaning port and George Town, Grand Cayman
- c. Ship Survey for the towage to insure the water-tight integrity of the vessel
- d. Double drum winch, towing bridle, adequate spares, shackles and other ancillary equipment including charts, crew, towing lights, pumps, day signals and appropriate certification for an international voyage to Grand Cayman
- e. Soundings of all tanks to be verified and displacement / light weight determined
- f. Doors and bulkheads to be made watertight
- g. Wooden plugs as appropriate on decks to be trimmed and fitted. Foam to be used as required
- h. Mooring bitts and deck plating in way to be strengthened for tow bridle connection
- i. Anchor chains to be prepared for use & emergency anchor system rigged
- j. Suitable primary & secondary towing bridle arrangement to be provided/rigged
- k. All loose chain and equipment on the main deck to be secured
- l. Wheelhouse windows to be secured watertight
- m. All towing regulations met as per regulations
- n. Pilot ladders rigged port and starboard
- o. Propellers & rudder to be secured
- p. All watertight doors secured
- q. Maximum ballast, all tanks pressed up and any free-standing water eliminated
- r. Standing by for several days in Grand Cayman while final diver cutouts and preparations are completed for sinking
- s. Insurance coverage for the tow from the cleaning yard to Grand Cayman including accidental loss and other contingencies

- t. Insurance coverage for wreck removal should the USS Kittiwake sink while in the Port of George Town. Please note that this must be a separate line item in any bids, as the Cayman Islands may choose to carry their own insurance for the USS Kittiwake during the entire project
- u. A plan to keep the USS Kittiwake under tow while in Cayman waters should inclement weather, Nor' Wester storms or similar conditions require the USS Kittiwake to be moved/towed prior to being sunk

Phase 3 - The sinking of the USS Kittiwake

The Cayman Islands is looking for a project plan and costs associated with the actual sinking of USS Kittiwake. As visitors will be allowed access to the USS Kittiwake for a period of several days prior to the sinking of the USS Kittiwake, liability for visitors on-board needs to be included. During this 'lay time' it is anticipated that the general public would be able to board the USS Kittiwake for viewing and tours for several days. Following this, time requirements should be identified and well as costs for the final diver cutouts and sinking preparations. Any Contractor wishing to tender a bid on this phase of the project must include insurance as a separate line item for reasons already stated.

The sinking site was selected by the criteria of:

- i. Appropriate depths to allow the USS Kittiwake to be used as both a snorkel and dive site
- ii. Appropriate distances/perimeters exist to the natural fringing reefs
- iii. Close proximity to George Town, allowing easy access for the majority of businesses to run dive/snorkel/submarine trips to it
- iv. Damaged or void area that has no coral growth, appropriate for an artificial reef

The sinking site is on the West side (generally the lee side) of Grand Cayman North of Sand Chute dive site

The site has been researched/surveyed and found to be appropriate for the sinking of a ship being of sufficient size and depth to match the USS Kittiwake, allowing distance perimeters (as established by the DoE) to be maintained between the artificial reef/ship and the natural reefs. The planned sinking site has had preliminary underwater surveys completed that insure compliance with DoE regulations and guidelines. The bottom composition in this area is sand.

The Port Authority requires a minimum of 15 foot clearance to the surface; however it may be decided to have more than 15 foot clearance, depending on the superstructure integrity of the USS Kittiwake. The location has depths ranging from 51 feet to 60 feet, on a gentle slope out to the deep wall of less than 10 degrees. The intention is to place the USS Kittiwake in shallow enough waters for snorklers, with the bulk of the USS Kittiwake extending into deeper waters for divers. Following sinking, the Cayman Islands will place all navigational markers and moorings on the USS Kittiwake. The USS Kittiwake will be positioned with the stern towards the sea (NW), and the bow facing SE (generally), in consideration of prevailing winter weather.

The Cayman Islands will provide all permits required to import and sink the USS Kittiwake in the Cayman Islands.

This phase of the project must include:

- a. Project Management/Supervision
- b. Safe access to and from the vessel including gangway, lighting, etc. will also be required both from the Port dock and while on-anchor

- c. Anchorage for the USS Kittiwake including temporary anchorage for final preparations plus permanent anchorage to assist the USS Kittiwake is remaining stationary. Suggestions including materials required for up to a 4-point anchoring system must be included
- d. A detailed plan on your recommendations as to how the USS Kittiwake will be sunk. The Cayman Islands has considered using explosives and/or scuttling her. Suggestions and proposals including justification will be considered. The Cayman Islands has storage magazines for the explosives, and appropriate permits to import explosives and detonate them will be provided should this be the selected method of sinking. Copies of licenses for individuals that would handle and detonate the explosives must be provided
- e. A detailed plan for accidental sinking and potential damage and / or loss, including the ship grounding, sinking off the deep wall, sinking on top of live coral reefs, sinking on her side or upside down, etc. and other contingency plans must be provided. The Contractor must provide insurance coverage for all contingencies including potential fines and cleanup costs for any damaged reefs or losses during the sinking process.
- f. CITA will provide work permits for any foreign workers required to enter and work in Cayman on this project
- g. CITA will provide the permits for importation of the USS Kittiwake on a duty free basis for customs clearance
- h. CITA will provide the permits for the importation of any explosives, and their temporary storage. Note that no explosives are allowed in the George Town Harbour area, as such, any explosives will have to be set once the USS Kittiwake is placed on anchor over her sinking site *(Note: no longer applicable as no explosives will be used)*
- i. Final diver cutouts and ship readiness plans must be provided including the proposed methodology of sinking
- j. Tug boat availability and lay time during the period that the USS Kittiwake is laid up in the Cayman Islands until her sinking. As we have a suitable tug for the USS Kittiwake while in Grand Cayman, this must be bid as a separate line item, as a tug for stand-by purposes may be provided locally
- k. A plan for inclement weather problems that may require the USS Kittiwake to be under tow or monitored to insure no damage to the USS Kittiwake, natural reefs, or the island during this time must be included
- l. Requirements for time on-island, number of personal, expenses, per diems, etc. must be detailed. CITA will provide accommodations for all Contractors personal during all times while in Cayman.

Other:

Please identify any additional needs, concerns, costs or considerations that are relevant to any project phase.

Timelines:

Assuming that Day 1 of the Project is the date of the selection of the successful Contractor, (ei. March 1st, 2005) please provide a timeline that shows work phases and estimated completion dates. See “**Attachment #2 – Kittiwake Timelines**” which forms a part of this Invitation to Tender. Timelines can be provided in alternate formats should you wish, as long as all information is included.

Key Personal:

Identify all key personal including the Project Manager, including all sub-contractors that will be used.

References:

Identify similar projects and references that can be contacted to discuss similar projects that you have undertaken.

Costs:

Please identify costs in US Dollars for all phases that you bid on. Additional items within the 3 Phases of the bid may be added as needed to identify additional work efforts or costs, as long as all areas of the bid are covered. See “**Attachment #1 – Kittiwake Costs**” which forms a part of this Invitation to Tender. Costing can be provided in alternate formats as long as all information is included in the detail requested.

Costs must be detailed enough to allow the Cayman Islands to make a decision on the selection of a Contractor, including description of work, man hours, expenses, any unknown elements and details of potential additional costs (if any). CITA encourages firm bids with the least number of unknown or estimated costs.

Terms of Payment: Please specify amounts and benchmarks on how you would expect initial deposits (if any), interim and final payments.

APPENDIX 6 - Guy Harvey Research Institute Monitoring Study



Fish Census of Vessel-Reefs in Grand Cayman

A Research Proposal

Richard E. Spieler, Ph.D.
Guy Harvey Research Institute, and
Oceanographic Center
Nova Southeastern University
8000 North Ocean Drive
Davie, Florida 33004



FISH CENSUS OF VESSEL-REEFS IN GRAND CAYMAN

INTRODUCTION

Derelict ships have been used to aggregate fish assemblages since before their first recorded deployment off the coast of New Jersey in 1935 (Stone 1985). There are well over 500 such vessel-reefs in The United States with 450+ in Florida alone. Deployed mainly for fishers and divers, most ships have been sunk in shallow coastal waters, at less than 150', since 1980. Despite the popularity of these reefs, there have been a surprisingly small number of studies on the fish assemblages associated with sunken ships and few of these have been rigorous. (Tsuda et al., 1975; Higo et al., 1978, 1979, 1983; Jones and Thompson, 1978; Chandler et al., 1985; Baynes and Szmant, 1989; Lindquist and Pietrafesa, 1989; Okamoto, 1989; Shinn and Wicklund, 1989; Stephan and Lindquist, 1989; Brock 1994; Markevich 1994; Eggin 1997). Further, to understand the role(s) artificial habitat, like a vessel-reef, plays in the local ecology requires an in-depth comparison of the associated biota between the artificial and natural habitat. The proposed study is one of few to statistically compare the fish assemblages on vessel-reefs to adjacent natural reefs (Jones and Thompson, 1978; Markevich 1994; Spieler 2001).

For the last three years the Guy Harvey Research Institute, and several government agencies, have been involved in research comparing the fish assemblages on vessel-reefs to natural reefs in Broward County, Florida. The results from this project have added several new wrinkles to the production/attraction controversy surrounding artificial reefs. Simply stated, the controversy centers on the question: Do artificial reefs increase fish populations in an area or merely aggregate them from surrounding natural reef? It appears the answer to this simple question is anything but simple and depends on the individual species and even the life-stage of the species (Spieler 2001; Arena et al. 2002). Thus, in addition to the well-established role of vessel-reefs as diver destinations, they may have important fishery management functions in some areas. The creation of vessel-reefs in Grand Cayman provides an excellent opportunity to examine the function of this artificial reef type in a tropical coral reef setting and to address some important questions of applied and basic science.

The objectives for the proposed study are to: 1) acquire a multi-seasonal portrait of the fish assemblages associated with ships used as artificial reefs in Grand Cayman; 2) examine the species, and life-stage-specific recruitment dynamics to vessel-reefs; 3) compare the fish assemblages between the vessel-reefs and the adjacent natural reefs; 4) compare the data on both natural and vessel reefs, and differences between them, to similar data sets from a subtropical environment (Florida); 5) Examine the effectiveness of using vessel-reefs as restoration structure; 6) depending on the time frame of deployment, compare the fish assemblages among all vessel-reefs in Grand Cayman. This study is planned for three years.

MATERIALS and METHODS

Initially the vessel-reefs and surrounding natural reef will be surveyed at 1, 2, 4, 8, 12, and 16 week intervals, to examine the processes of aggregation and recruitment. Thereafter, the ships will be surveyed at 6 month intervals for a total of 3 years. Divers will use a non-destructive, visual census method, commonly called a point-count, (Bohnsack and Bannerot 1986) to determine species richness and abundance at the shipwrecks and the adjacent natural reef sites. In brief, the visual census consists of counting the fishes in an imaginary 15 meter diameter cylinder, which extends from the substrate to the surface. Each diver is equipped with a 7.5 meter line and anchor weight, a slate with a waterproof data sheet and pencil, an underwater watch, and a one meter fish-stick as an aid in measuring fish lengths. The 7.5 meter line is used as a reference radius for the sample area. Safety divers remain well outside of the 15 meter cylinder, within visual contact, while the trained fish counter completes the sample.

First the diver records all the species seen during a 5 minute period. After the 5 minute species count is completed, the number of fish per species and the minimum, maximum and mean total length is recorded. Total length estimates allow for post-census calculation of biomass using length-weight equations published by Bohnsack and Harper (1988). When a length-weight equation for an identified species is not available, the equation for a congeneric is used. Sample times outside of the five-minute initial count are kept to no more than 20 minute. The 20 minute time limit is sufficient to complete abundance and size data collection and allow divers to complete repetitive dives without need for lengthy decompression. Where possible, the bow, stern, and four to eight sites on port and starboard sides will be censused to obtain a reliable estimate of the ship's fish assemblage.

At least twelve point-counts will be accomplished on neighboring edges of natural reef at the same time that the vessel-reef(s) is surveyed. Only edge data nearest the ships is included because of their close proximity and the fact that the edges have the most complex habitat and hold the most species and total fish of reef tract sites (Ettinger et al., 2001). The assumption is that if fishes are moving between natural and artificial reef, or being aggregated from natural to artificial reef, they will most likely come from neighboring sites. Also, comparing neighboring reef areas of high topographical relief and large numbers of fishes, to ships, which also show these characteristics, is probably a more realistic comparison than one incorporating low relief hardbottom. In the instance when a vessel-reef is established in a grounding site, we will attempt to survey neighboring natural reef believed to be similar to the pre-impact reef to evaluate the restoration of fish populations.

The data recorded during the fish counts will be entered into Microsoft Excel. Abundance and density (abundance/m²) data will be log transformed ($\log_{10} [x+1]$) to reduce heteroscedasticity. Data analysis will consist of parametric analysis of variance techniques (ANOVA) and the Student-Newman-Keuls test between means (SNK) using Statistica v.6.0 (StatSoft Inc.) software and non-parametric analyses using Primer software.

ANTICIPATED RESULTS

Result of these analyses will allow us to: compare differences between the fish assemblages on vessel reef(s) and natural reefs at Grand Cayman; follow the maturation of the vessel-reef(s) assemblages; determine if there are seasonal differences in vessel- and natural-reef assemblages; clarify aspects of the production/attraction controversy; examine the potential for using vessel reefs in coral reef restoration; and contrast the reef assemblages and the differences between them to a subtropical reef system (Broward Co., Florida).

PERSONNEL QUALIFICATIONS

Dr. Richard Spieler will be the principle investigator of this project. Richard is a professor of Oceanography and associate director of the Guy Harvey Research Institute at Nova Southeastern University (NSU). He has 25+ years experience in ichthyology and fish inventories; 10 years experience working with artificial reefs; and has authored or co-authored more than 70 scientific publications.

Paul Arena, will be the co-principle investigator. Paul is a graduate student working with Dr. Spieler on a Ph.D. degree. He has worked for 3 years on vessel-reef and natural-reef fish inventories and has published on this subject. Work on this project will be part of his dissertation research. Additional census takers will consist of Ph.D. ichthyologists or graduate students. All graduate students will have received both formal and informal training in fish identification and will be extremely familiar with underwater fish identification from previous projects.

BUDGETARY REQUIREMENTS

Salaries – none required

Boat transport – approximately 20 trips to each deployment site over 3 years

Housing – accommodations for 4-6 divers for 2-3 days for 10 trips over 3 years

Food - \$5,000/year

Airfare - 60 roundtrip flights from Ft. Lauderdale or Miami over 3 years

LITERATURE CITED

- Arena, Paul T., Lance K.B. Jordan, Robin L. Sherman, Fleur M. Hartung And Richard E. Spieler
Presence Of Juvenile Blackfin Snapper, *Lutjanus Bucanella*, And Snowy Grouper, *Epinephelus Niveatus*, On Shallow-Water Artificial Reefs. Proc. Annual Gulf Caribb. Fish. Instit. (In Press).
- Baynes, T.W. and Szmant, A.M. 1989. Effect of current on the sessile benthic community structure of an artificial reef. Bull. Mar. Sci. 44 (2): 545-566.
- Bohnsack, J.A. and Bannerot, S.P. 1986. A stationary visual census technique for quantitatively assessing community structure of coral reef fishes. U.S. Dept. of Commerce, NOAA Technical Report NMFS 41:1-15.
- Bohnsack, J.A. and Harper, D.E.. 1988. Length-weight relationship of selected marine reef fishes from southeastern United States. NOAA Technical Memorandum NMFS-SEFC. U.S. Dept. of Commerce.
- Brock, R.E. 1994. Beyond fisheries enhancement artificial reefs and ecotourism. Bull. Mar. Sci. 55(2-3): 1181-1188.
- Chandler, C.R., Sanders R.M. Jr. and Laundry A.M. Jr. 1985. Effects of three substrate variables on two artificial reef fish communities. Bull. Mar. Sci. 37(1): 129-142.
- Eggen, M. 1997. That sinking feeling. Do "artificial reefs" in BC waters increase biodiversity or waste? Alternative, vol. 23 (1):7
- Ettinger, B.D., D. S. Gilliam, L. K.B. Jordan, R. L. Sherman and R. E. Spieler. 2001. The coral reef fishes of Broward County Florida, species and abundance: a work in progress. Proc. 52nd Annual Gulf Caribb. Fish. Instit. 748-756.
- Higo, N. and Nagashima, M. 1978 On the fish gathering effect of the artificial reefs ascertained by the diving observation _ 2. At the sea of the Satsuma Peninsula in Kagoshima Prefecture. Mem. Fac. Fish., Kagoshima Univ., 27(1), 117-130.
- Higo, N., Hashi, H., Tabata, S. and Kamimizutaru, T. 1979. On the fish gathering effect of the artificial reefs ascertained by the diving observation. 3. At the off sea of Taniyama, Kagoshima City. Mem. Fac. Fish., Kagoshima Univ., 28, 91-105.
- Higo, N., Yoshiga, S., Yoshida, M., Takenoshita, Y., and Hashi, H. 1983. On the fish gathering effect of the artificial reefs ascertained by the diving observation. 12: In case of the open sea off Kanoya City. Mem. Fac. Fish. Kagoshima Unive./Kagoshima-Dai Suisangakubu Kiyo., 32: 229-243.
- Jones, R.S. and Thompson, M.J. 1978. Comparison of Florida reef fish assemblages using a rapid visual technique. Bull. Mar. Sci. 28(1): 159-172.
- Krauth, J. 1988. Distribution-free statistics. Elsevier, New York. 381 p.
- Lindquist, D.G.. and Pietrafesa, L.J. 1989. Current vortices and fish aggregations: The current field and associated fishes around a tugboat wreck in Onslow Bay, North Carolina. Bull. Mar. Sci. 44(2):533-544.
- Markevich, A.I. 1994. Species composition and ecological characteristics of fishes of artificial shelters in Peter the Great Bay, Sea of Japan. Russian Journal of Marine Biology, Vol.20 (3): 169-173

- Okamoto, M . 1989. Ability of a small observation ROV to observe fish fauna around artificial fish reefs in comparison with diving observation. *Nippon Suisan Gakkaishi/Bull. Jap. Soc. Sci. Fish.*55(9):1539-1546.
- Spieler, Richard E. 2001. Fish census of selected artificial reefs in Broward County
Annual report to Broward County. 28pp.
- Shinn, A. and Wicklund, R. 1989. Artificial reef observations from a manned submersible off southeast Florida. *Bull. Marine Sci.* 44(2): 1041-1050.
- Stephan, C.D. and Lindquist, D.G. 1989. Comparative analysis of the fish assemblages associated with old and new shipwrecks and fish aggregating devices in Onslow Bay, North Carolina. Florida. *Bull. Marine Sci.* 44(2): 698-717.
- Stone, R.B. 1985. History of Artificial Reef Use in the United States. Pages 3-11 In:
Artificial Reefs: Marine and Freshwater Applications. Lewis Publishers, Inc., Chelsea, Michigan
- Tsuda, R.T., Amesbury S.S., and Moras S.C. 1977. Preliminary observations on the algae, corals, and fishes inhabiting the sunken ferry "Fujikawa Maru" in Truk Lagoon. *Atoll Research Bulletin* no. 212: 1-6.

APPENDIX 7 - Cayman Islands Shipping Registry letter



Cayman Islands Shipping Registry

3rd Floor, Kirk House
22 Albert Panton Street
P.O. Box 2256 GT
George Town, Grand Cayman
Cayman Islands, B.W.I.

Tel: (345) 949-8831
Fax: (345) 949-8849
Website: www.caymarad.org

06 April 2005

Mrs. Nancy Easterbrook
Shipwreck City Project Manager
CITA
Grand Cayman

Dear Mrs. Easterbrook

SHIPWRECK CITY PROJECT

Further to recent communications regarding the delivery of the ex submarine rescue vessel *USS Kittiwake* to Grand Cayman in connection with the Shipwreck City Project.

Please be advised that providing the vessel is delivered to Grand Cayman as a "dead ship" under tow for the sole purpose of being sunk as an artificial reef then the Cayman Islands Shipping Registry has no requirements for the vessel to be registered with this Administration whilst in Cayman Islands waters.

Should you require any further clarification and/or assistance please do not hesitate to contact this office.

Yours sincerely

John Reynolds
Principal Marine Surveyor

APPENDIX 8 - Kittiwake Timeline and Milestones

KITTIWAKE TIMELINES and MILESTONES	Dates	Primary Responsibility
	2006	
Resubmission of Application to MARAD	15-Nov	CITA
Review, comments, updates to application	Nov 16 - Dec 30	MARAD/CITA/CI Government
Approval by MARAD of Cayman Islands Application for Kittiwake	31-Dec	MARAD
	2007	
Provision of Insurance and Surety certificates to MARAD	6-Jan	Dominion Marine/West Indian Marine
Submission of US Coast Guard Dead Ship Tow application (US/Local surveyor)	10-Jan	Dominion Marine
Comments or Restrictions from US Coast Guard received and submitted	14-Jan	CITA/Dominion Marine
Transfer of Kittiwake from MARAD to Cayman Islands Gov't	15-Jan	MARAD
Preparation of Kittiwake for tow/mobilization to Dominion Marine (inland tow)	Jan 16 - 18	Dominion Marine
Additional 2 anchors and chains loaded on stern deck	Jan 16 - 18	MARAD/Dominion Marine
Tow to Dominion Marine Shipyard (US surveyor to be used)	19-Jan	Dominion Marine
Remediation of Paint sample #67 (if required)	21-Jan	Dominion Marine
Re-sampling of area in proximity to paint sample #67 (if required)	22-Jan	Dominion Marine
Lab reports available on the area of paint sample #67	30-Jan	Dominion Marine
Remediation of Kittiwake & interim inspections as needed/requested	Jan 20 - April 30	Dominion Marine
Final Inspections on Remediation work	May 1 - 7	CI DOE/MARAD/US EPA
Submission of approved Coastal Works License and Dumping Permit to MARAD	15-May	CI Government/ CI DOE
Provision of Insurance certificates to MARAD on tow (International)	17-May	Dominion Marine
Submission of US Coast Guard Dead Ship Tow application (International- Cayman Surveyor)	20-May	Dominion Marine/CISR
Comments or Restrictions from US Coast Guard received and submitted	24-May	CITA
Tow to Cayman Islands - Georgetown Harbour	May 26 - June 26	Dominion Marine
Submission of work permits for Dominion Marine personal in Cayman	15-Jun	CITA
Approval of work permits for Dominion Marine Personal in Cayman	20-Jun	CI Immigration
West Indian Marine tug on standby for Kittiwake arrival (until vessel sunk)	June 20 - July 3	West Indian Marine
Kittiwake preparations for topside visitation (lights, boarding access)	June 21 - 22	West Indian Marine
Kittiwake topside visitations	June 23 - 24	CITA/ CI DOT
Final ship preparations for diver safety	June 25 - 31	West Indian Marine
Sinking of the Kittiwake	1-Jul	West Indian Marine
Safety Diver inspections of the Kittiwake	2-Jul	West Indian Marine/CITA/ CI DOE
Moorings installed on the Kittiwake for boats	July 2 - 3	West Indian Marine/CI DOE
Navigational Marker installed on the Kittiwake	July 2 - 3	West Indian Marine/CI DOE
Kittiwake open to public for snorkel and diving	3-Jul	

APPENDIX 9 Kittiwake Sinking Plan – West Indian Marine Group

Kittiwake Disposal Plan

&

Kittiwake positioning & sinking

USS Kittiwake

**Seven Mile Beach
Grand Cayman**

**West Indian Marine Group
West Indian Marine Ltd.**

**24th March, 2005
Updated 16th June, 2006
Updated Nov 1, 2006**

Vessel Disposal Plan & Kittiwake positioning

Introductory Overview

West Indian Marine Ltd. present this document as their proposal for the sinking of the USS Kittiwake in Grand Cayman, inclusive of methodology for the Kittiwake positioning and sinking of the vessel following the arrival of the vessel in Grand Cayman.

West Indian Marine Ltd. is a fully Caymanian owned and operated local company, specializing in the marine services of towing, salvage, rescue, ship assist, tendering, marine contracting, dredging, dredge tendering, marine construction, coastal shore protection and beach stabilization. West Indian Marine is the only local Caymanian Company that has both the marine expertise and the marine equipment in the Cayman Islands to carry out this project.

This vessel disposal/sinking plan is proposed, based on general information, photos, ship visit in Virginia and details provided in the invitation to tender document for the Kittiwake project together with conversations with the managers of the project. This proposal is also based on the vessel having full preparations completed in the shipyard which is contracted to carry out Phase I of the project tender, including but not limited to the installation of air vents, flooding ports with valves and all diver access holes fitted and blanked. The extent of diver access hole cutting and general preparation was discussed with West Indian Marine while onboard the vessel, and a plan for sinking requirements will be submitted for work to be completed in the US prior to the Kittiwake being towed to Cayman.

West Indian Marine Ltd's disposal plan includes stand-by services, positioning and securing the Kittiwake at its sinking site and then the controlled sinking of the vessel at the site with the most environmentally safe disposal of the hull as possible. A coastal works application has been submitted for a variety of sites on the West side of Grand Cayman, and any of the 3 sites are suitable for the sinking and securing of the vessel.

We are confident that we can position the vessel and carry out the controlled sinking of the hull with the minimum of effects to the local marine environment.

Vessel Particulars

The USS Kittiwake 251 is a Submarine rescue / Submarine tender vessel. The vessel is a single screw Chanticleer Class Submarine Rescue Vessel commissioned for service in 1944. The vessel's structure is in good condition and all DB tanks are either ballast or fuel bunker tanks which have all light marine diesel bunkers removed from these fuel tanks. The bow comprises of a lower forepeak ballast tank and an upper deck store with anchor chain lockers.

General particulars:

Length LOA	2513ft
Length BP	Unknown
Breadth Moulded	42.0 ft
Depth Moulded	Unknown
Max Draft – SLL	16.0 ft

Tonnage LWT	Unknown
Tonnage DWT	2,045.00 tons
Gross Tonnage	Unknown
Net Tonnage	Unknown
Propulsion	Diesel Electric
Horsepower	3000 HP
Built	Moore, Savannah, Georgia
Year of Build	1944
Call Sign	Unknown
IMO #	N.A.
Official #	Unknown
Class	US Navy

Current Status of the vessel.

The vessel is currently located at anchor, laid up in the James River Reserve Fleet at Norfolk, Virginia, USA.

Following official hand over of the vessel by MARAD to the Cayman Islands Government, it has been documented that the vessel's cleaning, preparation and remediation work in accordance with Phase 1 of the project works will be carried out by Dominion Marine Group, the chosen US contractor, in close proximity to the vessel's lay up location. It is reported that in Phase 1 of the project, it will include the removal of all fuel from the vessels double bottom fuel tanks, and fuel settling and daily service tanks, and oil will be removed from the vessel's L.O. storage reserves and the vessel's main engine, generators, air and AC compressor crankcases and transformers.

West Indian Marine have assumed in their tender response that the environment cleanup and preparation of the vessel including fuels, oils, lagging, lead ballast, etc. etc. etc. will be fully and completely be carried out in Phase I of the project works, prior to the vessel departing US waters.

Prevailing weather conditions

The sinking site is on the west coast of Grand Cayman in the lee of the normal prevailing easterly trade winds swinging between the NE to East to SE quadrant for most of the year. Adverse weather conditions generated by cold fronts moving from west to east out of the US/Mexican Gulf during the winter months from mid November to the end of April will affect the site during these months.

Adverse weather conditions can range from strong winds from the North through East quadrant or very high seas and strong winds from the Northwest to Northerly quadrant (commonly called Nor'westers). The annual hurricane season for the Caribbean Basin officially commences in June every year however hurricanes rarely affect the Western Caribbean until late August into September and through to November of each year.

The vessel's sinking site lays in a west to east direction off the leeward side of Grand Cayman and it is intended to sink the vessel with the ship pointing in a Northwest/Southeast direction.

Technical Overview & Methodology

As the exact location has to be finalized and agreed, for the sinking of the vessel and considering the prevailing weather conditions normally at the site with the environmental sensitivities in the jurisdiction of the Cayman Islands, West Indian Marine Ltd. have devised a sinking plan for the vessel utilizing a combination of controlled flooding, added floatation buoyancy and position securing methodologies.

The proposed plan for sinking the vessel is based on the water tight integrity of the vessel at all times, allowing for the controlled flooding of compartments, spaces and tanks throughout the vessel. Maintaining control of the buoyancy, trim and heel of the vessel throughout the sinking operation is of paramount importance due to the fine lines and narrow hull shape of the vessel.

Preparations would be made prior to commencing sinking operations, for the controlled sinking of the vessel utilizing tank and space flooding with valved control of flooding together with open vented removal of air entrapment from those tanks and spaces.

The vessel would be positioned afloat at the site secured by fore and aft anchoring, and the following procedures would be carried out in due process;
The removal of unnecessary equipment and materials from the deck and compartments of the vessel will be carried out.

Compressed air floatation, of compartments and tanks will be arranged on stand-by for emergency floatation of the hull if required or necessary at any time during the stand-by, positioning and sinking of the Kittiwake at the site.

Pontoon airbag floatation around the outside perimeter of the vessel utilizing pontoon air bags positioned port and starboard in some areas around the vessel will be installed to provide additional buoyancy to the vessel's hull during the controlled sinking process.
Unsealing of the purpose fitted, flooding entries and air escape vents to all compartments and tanks will occur.

Tank manhole covers will be removed

Vessel's bow anchors and chain will be ranged out and positioned from the bow of the vessel at the site.

Stern anchors and chain will be attached to the stern of the vessel, ranged and positioned at the site

Compartment space and tank flooding, utilizing both controlled gravity and pump flooding will occur.

Towage / Stand-by vessel operations

Simultaneous, to the above sinking methodology, West Indian Marine would position our tug/utility vessel to stand-by amidships to the vessel to maintain and preserve upright heel during the flooding operations and prevent the free surface effect of compartment flooding to cause

heeling of the vessel. The West Indian Marine line tender vessels would also maintain positioning of the vessel fore and aft during the flooding process.

Air compressors and pumps will remain working and or available onboard the West Indian Marine barge anchored adjacent to the Kittiwake, during the flooding and sinking of the vessel.

Once the vessel has sunk into position, anchors would be repositioned and anchor chains tensioned. The West Indian Marine vessels and equipment would remain on site following the sinking of the vessel to monitor and inspect the vessel after the bedding in process and final securing of the Kittiwake has been completed.

Should assessment of the vessel conclude that additional venting of trapped air be required, West Indian Marine will evacuate pockets of air found after sinking.

Mobilization

West Indian Marine Ltd. will mobilize one shallow draft salvage tug/utility supply vessel with a hydraulic crane and a hydraulic A-frame gantry, capable of anchor handling and equipment handling, together with support equipment including a 60ft x 24ft equipment spud barge and two small line tenders.

An extensive array of diving equipment, portable salvage equipment, including but not limited to generators, pumps, high volume diesel driven air compressor, diesel driven lighting towers, pontoon lift bags, welding machines, plasma cutters etc. will be mobilized.

Personnel – Sinking/salvage crew

Key personnel provided by West Indian Marine Ltd. have association with United Salvage previously of the Howard Smith Group which has since been acquired by the Adsteam Group, and Resolve Marine. Both of these companies are International towage and salvage operators. The following personnel will form the core of the salvage crew required for the preparation, handling, positioning and sinking of this vessel at the site;

- One salvage master
- One assistant salvage master/supervisor
- One salvage vessel master
- One salvage welder/mechanic
- Three salvage divers/mechanics/crew
- Two general salvage hands/crew
- The above personnel are inclusive of the normal working compliment of crew onboard the salvage utility vessel.

Portable salvage equipment

The portable equipment provided below is included but not limited to the following;

- Diesel driven compressors
- Gas driven small generators
- Gas driven centrifugal pumps
- Electric submersible pumps

- Welding plants
- Plasma cutters.
- Chain and cable pullers, cumalongs and lifting blocks
- Hookah diving compressors
- Diving gear
- Underwater diver's communications
- General communications
- Diesel driven lighting towers
- Electrical portable flood lighting
- Garbage skip container
- Anchors, chain, buoys and assorted mooring equipment
- Assorted ropes, wire slings, lashings and soft straps and lifting gear.
- Sealing and patching materials including gasket materials, and sealing compounds.
- Assortment of hand and power tools and equipment
- Underwater Hydraulic power tools
- Oil spill, pollution control and removal materials.
- Gases, gasoline and diesel fuel.

Scope of Work

- Initial survey & evaluation of Kittiwake to ascertain current status & establish an update of the condition of the vessel following delivery to George Town
- Organize and mobilize portable equipment, materials and supplies
- Mobilize floating equipment
- Mobilize salvage crew
- Install safe moorings
- Transfer equipment to the vessel
- Prepare vessel for sinking/flooding
- Range out ship's anchors and chain
- Clean up the vessel and remove equipment
- Prepare vessel for sinking
- Install and secure additional pontoon type air lift bags
- Commence inflation of air lift bags
- Position tug to standby the vessel
- Commence gravity and pump flooding of all spaces
- Maintain stability of the vessel with reduced buoyancy
- Stabilize and trim vessel with controlled flooding
- Remove additional air lift bag floatation
 - Monitor sinking of the vessel onto sea bottom
- Adjust and re-position all anchors fore and aft and tension all anchor chains for secure anchorage of Kittiwake onto the sea bottom
- De-mobilize floating equipment, portable salvage equipment, salvage crew and personnel

Sinking Schedule

West Indian Marine will commence mobilization immediately upon award of the contract and the receipt of the initial first payment. (Completed) West Indian Marine estimate that they will be

onsite to commence sinking operations directly following the delivery of the vessel into Cayman waters.

Sinking operations are expected to be continuous and without delay, however some functions of the operation are expected to be re-scheduled subject to the prevailing weather conditions at the time. It is estimated that pre-sinking events, pre-sinking preparations and inspections of the vessel will take 7 days requiring tug and equipment standby. Sinking operations at the site will take less than 7 days conditional on certain preparations being carried out under the instruction of John MacKenzie as salvage master for West Indian Marine Ltd. during Phase I of the project at the shipyard chosen to carry out the clean up and remedial work on the vessel.

Commercial bid / Contract Price

Phase I – Cleaning & Remediation – Not Applicable / No bid

Phase II - Not applicable / No bid

Full Phase III – Sinking

Stand-by at George Town

West Indian Marine in a bid for this portion of Phase III of the work, shall stand by the vessel for up to nine (9) days for the contracted price following, including fuel. However should the vessel have to be taken to sea under tug/tow power at any time, the stand-by daily hire rate will be applied excluding fuel, with fuel cost being invoiced as an additional charge. Stand-by should not exceed more than 9days of display, inspections and preparations.

Positioning & Sinking

West Indian Marine in a bid for this portion of Phase III of the work, shall prepare, position and sink the vessel for the hire rate as noted following, inclusive of fuel, crew, divers and labour.

This rate includes the provision of the tug/utility salvage vessel, the barge/work platform and the two line handling tenders/tow boats.

Equipment & Materials

Two anchors and chain	supplied by MARAD
Pontoon airlift bags	Supplied and property of WIM
Straps, slings, shackles, ropes	Supplied and property of WIM
Diesel compressor hire	Supplied and property of WIM
Welding machine/welder, hire	Supplied and property of WIM
Diesel flood lighting tower, hire	Supplied and property of WIM

Payment Schedule

Phase III – Sinking \$49,171. US\$

(US\$)	Total contract Paid	Balance Due
Kittiwake Sinking Plan	\$49,171.	49,171.
30% deposit on Sinking Plan April 2006	14,751.	34,420.
Additional contract Payment Invoiced, not paid	16,500.	17,920.
Total contract outstanding:		17,920.

Company Statement

West Indian Marine Ltd. is a Cayman Islands' based and registered company specializing in salvage, towage, marine services, marine construction and marine contracting. The company's work includes salvage, general towage, anchor handling, buoy handling, marine services, ship assist work, ship tendering, marine construction, marinas, docks, sea walls, man made underwater reefs (reef balls), coastal shore protection, beach stabilization (ProTecTube), moorings, navigational aids and markers, and dredge tendering.

Principals and personnel employed by the company include persons possessing vast shipping and marine engineering experience, an 'ex' American Bureau of Shipping (ABS Class) surveyor, commercial divers, offshore oil industry saturation deep diver, vessel operators master mariners and salvage experts.

West Indian Marine Ltd. submits this proposal as a single company submission with West Indian Marine as the sole contractor, however West Indian Marine have close working relationships with two other marine contractors in close proximity to the Cayman Islands. We are well connected in the western Caribbean and throughout the Cayman Islands, Honduras and Belize. We are both familiar and well adverse in working in the area and especially in the Cayman Islands.

West Indian Marine staff, personnel and labour do not require work permits and can work in the Cayman Islands without restriction. The company works predominantly in inland waters, environmentally sensitive coastal marine locations, marine national parks, reserves, and around the protected coral reefs of the Cayman Islands.

We trust you will find our "Sinking/Salvage Plan" for the USS Kittiwake both satisfactory, fair and reasonable. Should you have any questions or require further information and details about any aspect of our "Plan", please do not hesitate to contact us and we will endeavor to accommodate you.

We look forward to your response in due course and will be happy to work with you, should we be the successful bidder for the various portions of is contract can do. Thank you for your assistance and co-operation to date in discussing and providing the answers to our many questions concerning this vessel project.

Yours Sincerely,
West Indian Marine Ltd.

_____ (Signature on file as needed for verification)
John MacKenzie
Managing Director



West Indian Marine Barge



West Indian Marine Tug

APPENDIX 10 - Management & Maintenance Program – Kittiwake

**“KITTIWAKE REEFING PROJECT”
CAYMAN ISLANDS
Maintenance & Management Program
For the ex- USS Kittiwake
“M&M Project”**

**OBJECTIVES:**

The M&M project has been undertaken by the Cayman Islands Tourism Association and the Cayman Islands Government as one component in the overall Kittiwake Project, to provide long-term monitoring, reporting and maintenance on the artificial reef/wreck. The intent of the project is to insure that the artificial reef/wreck is well maintained and monitored including several areas of concern and interest, namely:

1. On-going Diver, Snorklers and Submarine Safety
2. Debris Removal from time to time/On-going protection of the surrounding natural reefs
3. Boat safety for mooring and navigation
4. Statistical information on visitations/financial return on Investment to the tourism sector/Government versus investment

The Cayman Islands Tourism Association (CITA), most specifically the Watersports Members of the CITA and the Cayman Islands Government, most specifically the Ministry of Tourism and Environment, have committed to the M&M project in response to requests from the Cayman Islands Department of the Environment. In the past, no maintenance plans have been in place to insure that a wreck, once sunk, will continue to be maintained and cleaned. Natural forces of storms, surge, sand movement, hurricanes and normal deterioration will cause eventual damage and parts becoming loose causing debris or flotsam, over the anticipated 50+ year life span of the Kittiwake. This project puts in place measures to insure that the artificial reef will not cause or create any additional damage to the natural, healthy reefs of the Cayman Islands and maintain a safe wreck dive for boats, crew and visitors alike.

As a secondary objective, statistical information will be collected for use by partners in the Tourism Industry including both Government and Private Sector business members of the CITA. Information collected will assist the Kittiwake Project in evaluating the success of the Kittiwake as an artificial reef, the financial return on our investment, planning information for new/future wrecks and ecological reference relative to the ships adaptation to the waters of Cayman.

CONTACTS:

M&M Project Manager: Ken Thompson, Executive Director, CITA
(345) 949-8522 Phone
(345) 946-8522 Fax
(345) 324-0700 Cel
ken@cita.ky Email

Office: CITA
PO Box 31086 SMB
73 Lawrence Boulevard, Islander Complex
Grand Cayman, Cayman Islands
(345) 949-8522 Phone
(345) 946-8522 Fax
ken@cita.ky

USS/USNS Kittiwake 251' Sub Rescue ASR-13:

- Chanticleer Class Submarine Rescue Vessel
- Displacement: 2,045 tons (full load)
- Length: 251'4"
- Beam: 42' Draft: 16'
- Speed: 14.5 knots (max); 10 knots (econ)
- Armament: 2 3"/50 DP, 8 20mm, 4 DC tracks
- Complement:
- Diesel-electric engines, single screw, 3,000 h.p.
- Built at Moore, Savannah, Georgia and commissioned 1944

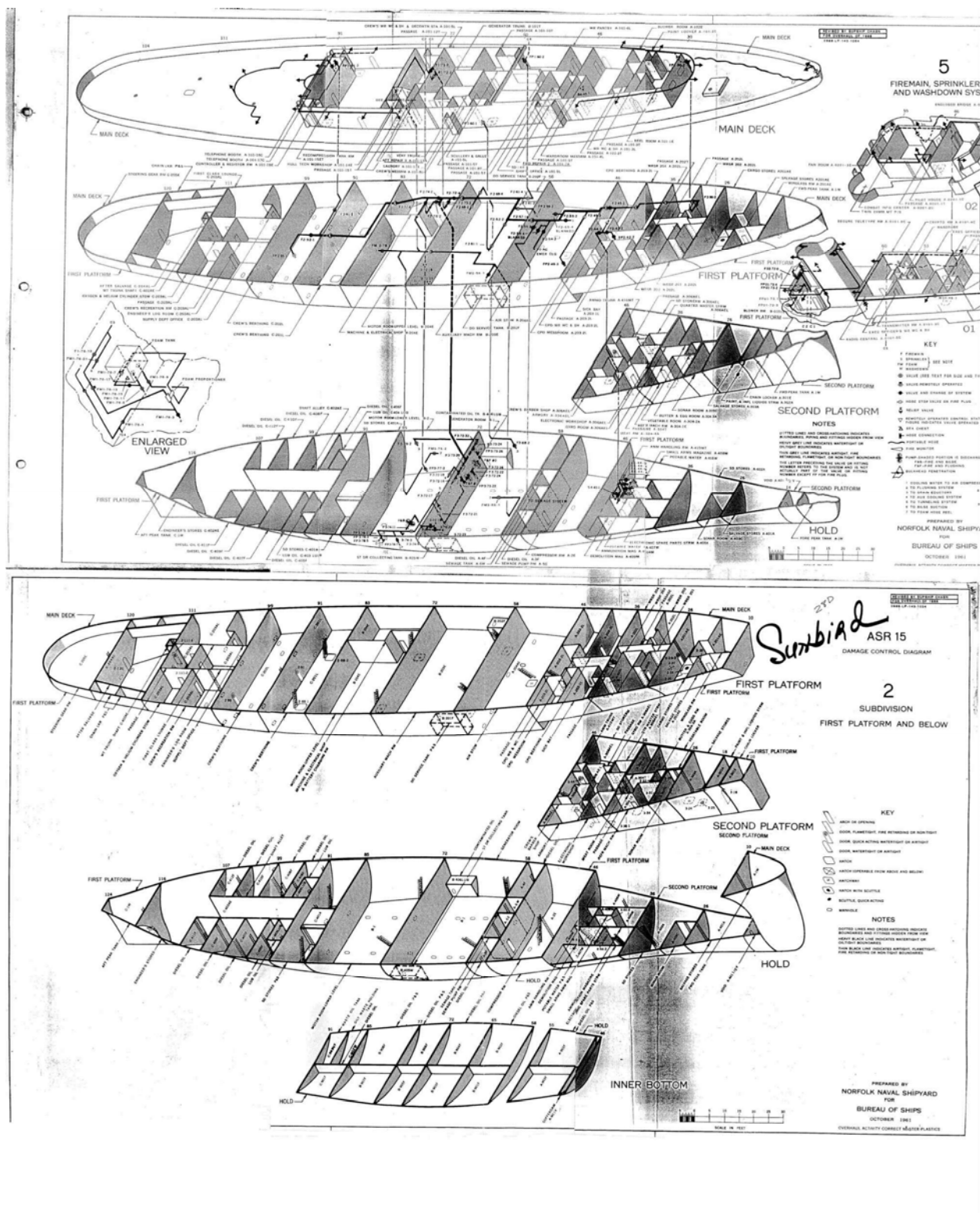
**BACKGROUND on the USS KITTIWAKE:**

The USS Kittiwake has been cleaned and remediated to the Cayman Islands Department of the Environment standards, which are based primarily on Environment Canada's *Clean-Up Guidelines for Ocean Disposal of Vessels* and the US EPA's *Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs*. All Hazardous Materials and substances (HAZMAT) have been removed from the Kittiwake prior to her sinking, including asbestos, pcb's, toxic substances, oils, lubes, grease, black water, fuels, paint, etc.

Additionally, the majority of all loose flotsam, lagging, overhead wiring, carpet, floor tiles, exfoliating paint, thin sheet metal, crew cabin walls and other materials that would create either diver safety concerns or become loose debris once sunk, thereby creating environmental hazards to corals reefs and marine life and/or divers has been removed from the ship. However, some

tiles, wood and the like still remain on-board. These items, and any breakage, tearing away, etc. of the Kittiwake will need to be removed from sinking site from time to time.

Diver safety cutouts are on the ship both vertically and horizontally, approximately every 50 feet. These entry/exit points are open areas that are labeled, allowing divers' easy egress from the ship at any point, and a navigational tool for divers to find their position on the ship. These exit/entrance areas will need to be maintained for cleaning of growth on them, and insuring that all entry/exit points remain safe for divers to pass through.

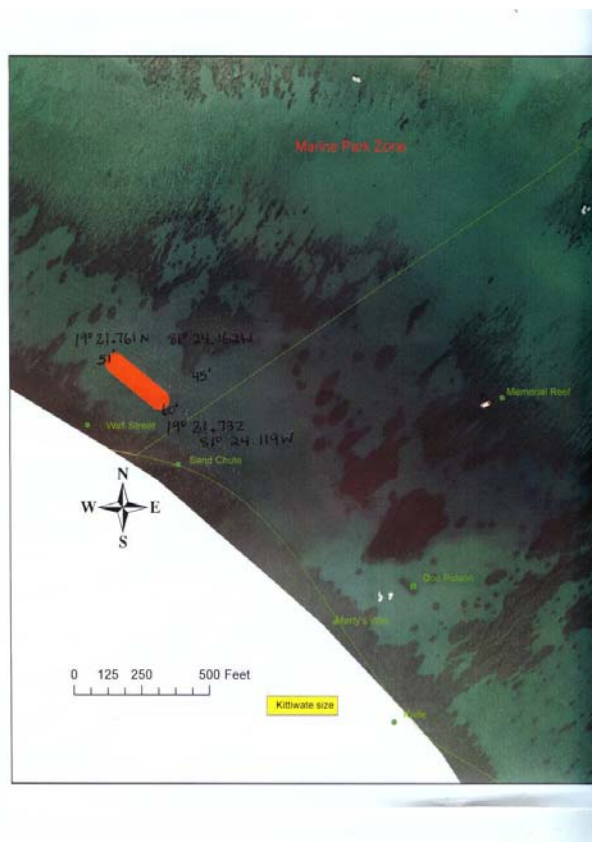


(Note – the above is the layout of the Sunbird (sister ship to the Kittiwake). This layout will be replaced with the Kittiwake ship layout, including cutouts and markings once completed)

For the purposes of creating an interesting dive for divers and snorklers, as much main and ancillary equipment/machinery as possible has been left on board. This machinery/equipment must also be monitored to insure that it is not moving, breaking loose or deteriorating. In the event that is it, these items will be removed from the Kittiwake.

LOCATION:

The site location of the Kittiwake is on the West side (generally the lee side) of Grand Cayman, slightly north of the dive site named “Sand Chute”.



Depth: 51 - 60 feet – flat bottom

GPS Coordinates: **19 21. 761N (Bow)**
081 24. 162W

19 21. 732N (Stern)
081 24.199W

GUY HARVEY RESEARCH INSTITUTE:

In addition to the M&M Project, the Guy Harvey Research Institute (GHRI) has initiated a long-term monitoring program on the wreck/reef, to provide additional scientific data on colonization, bio-diversity and the effects on the surrounding fringing reefs. The Kittiwake resides in a Marine Park, affording all of the rights and enforcement of Marine Park Zones in the Cayman Islands. This monitoring project is outside of the scope of the M&M Project.

FUNDING:

The Cayman Islands Government will collect a visitor fee to the Kittiwake paid by public sector visiting the Kittiwake, shared with the CITA. This fee is paid by all companies and individuals that visit the Kittiwake on a year round basis. Surplus of any revenues will be used by Government to fund the maintenance of the ship and for other general use as so decided upon.

PROCESS & PARTICIPATION:

All members of the CITA will participate in the M&M project from time to time. Watersports companies, paid on a reduced cost basis for staff, fuel and outgoings will assume the primary responsibility for the M&M project on a month to month basis, with other sectors of the CITA contributing from time to time for needs such as additional resources, catastrophic disasters, financial needs, etc. should they be encountered over time. The maintenance costs on the ship will be paid by Government to CITA and/or DOE from revenues collected on the visits to the ship.

An M&M committee has been formed with a Chairperson and volunteer members. This committee is responsible for:

- Oversight of the project
- Following up on data collection
- Oversight of the financial contributions made for Kittiwake visitation
- Scheduling monthly work required
- Scheduling specific projects/cleanups from time to time
- Reporting to the CITA Board of Directors
- Liaison with Port Authority, Department of the Environment, CITA and others relating to the M&M Project

For normal monthly inspections, a rotating roster is set up to assign one or several watersports members working as a team each month, on or about the 1st day of each month, to visit the Kittiwake and do inspections. This task requires a dive boat, 4 divers, slates/pencils, lights, lift bags, photographer & checklists for each inspector. A detailed list of all inspections to be done monthly is provided following. Through this method, CITA members should only have to allocate one (1) day per year or so to assist in this process. Members having dive and snorkel boats in the closest vicinity will be assigned for the purposes of ease of access, most usage, etc. (example – members in Little Cayman will not be asked to inspect a Kittiwake on Grand Cayman; a wreck sunk on the East End will not be inspected by a member only diving on the West side of Grand Cayman, etc.) Photography or video will also be taken during this monthly inspection to monitor the growth on the reef of marine life.

M&M PROJECT - MONTHLY TASK LIST				
Report Date:				
Inspection by:				
Task Description	Good/Okay	Fair/Minor	Problems/Additional Attention	Action Taken

- 1 Diver entry/exit marking clean and visible
- 2 Diver entry/exit holes - no sharp edges, tears, jagged edges
- 3 Navigational Markers all intact and solid
- 4 Diver entry/exit holes - no obstructions to safe exit
- 5 Sealed compartments all intact
- 6 Inspection inside the Kittiwake for any loose debris, flotsam, tiles, parts of the ship or other that is loose
- 7 Inspection of 360 degrees outside the Kittiwake for any loose debris, flotsam, tiles, parts of the ship or other that is loose
- 8 Check all 4 anchor sets for wear and tear, secure
- 9 Dive Boat moorings - all intact and secure, no fraying, deterioration

In addition, all members will report daily or as required to the CITA/CI DOE M&M Committee should any issues be noted while diving or snorkeling on the Kittiwake. In this instance, and whenever work has been determined to be done, a group of volunteers from member companies will attend to the issue on a priority basis, allowing time to gather staff, boats, equipment needed, project plan for the task at hand, weather, etc.

At all times the maintenance team must coordinate and report to DoE to insure that the process and tasks are completed according to environmental and diver safety standards. Approval from DoE on the process and methodology for the removal of anything from the Kittiwake must be obtained.

Department of the Environment: Oversight

DoE M&M Project Oversight:
(345) 949-8469 Phone
(345) 949-4020 Fax
Scott.Slaybaugh@gov.ky Email

Mr. Scott Slaybaugh

The specific tasks involved in the project are described following:

1. On-going Diver and Snorkler Safety

Tasks involved in this component include:

- Diver cutout markings being cleaned and clearly visible for navigation and safe/entry/exit points
- Sharp edges being removed to prevent any tears, rips, cuts or accidents to divers
- Navigational Markers on the Kittiwake monitored and reported to Port Authority. As this Kittiwake is in 60 feet of water, although clear of all navigational channels, the Navigation Markers must be maintained at all times
- Any deterioration that might cause overhead snags or any deterioration that might block a passage, exit or entry point must be reported to have it removed for diver/snorklers safety
- Any sealed points in the wreck that become opened up must be reported. These areas might not be safe for diver access, and as such will have to be inspected and then opened up or resealed as appropriate.

2. Debris Removal from time to time/ On-going protection of the surrounding natural reefs

- Inspection both inside and outside the Kittiwake for any loose debris, flotsam, tiles, parts of the ship or other that could move and cause damage to the natural artificial reefs in the surrounding areas. Any of this debris needs to be removed from the water.
- Checking of the additional anchors set on the bottom to assist in securing the Kittiwake must be done.
- Catastrophic disaster plans. Plans for the Kittiwake ending up on shore or on the live coral reefs require an emergency meeting of the Committee, the CITA Board of Directors and the Department of the Environment to address the process, timing and funding of the cleanup requirements.

3. Boat safety for mooring and Navigation

- Monitoring and reporting to DoE on the state of moorings for boat security. Any moorings fraying, loose, or lost need to be reported to DoE for repair/replacement

4. Statistical information on visitations/Financial review as to return to the tourism sector versus investment

- Statistical data gathered includes the following. This data must be reported on a monthly basis to the CITA/MOT Office by email or fax. The data reported will be shared with CITA members and Government Environmental and Tourism related departments. The information gathered will provide the partners the information required in order to see the revenue generated from the investment of acquiring and sinking the ship.

Visitors per day, submitted monthly by each company:

- Divers per day on the Kittiwake
- Snorklers per day on the Kittiwake
- Submarine passengers per day on the Kittiwake

Growth on the Kittiwake:

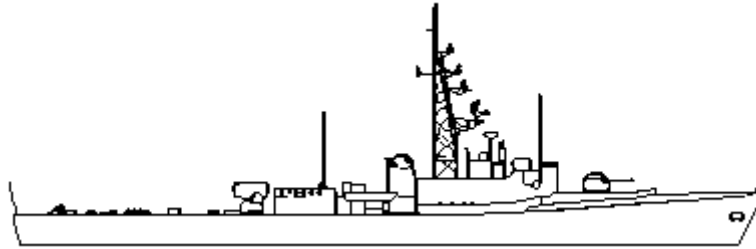
- Monthly photography or videography at selected points on the Kittiwake to monitor growth of algae, coral, sponges, marine life. Specific locations on the Kittiwake will be identified so that alternating staff can shoot the same locations on a month to month and year to year basis.

Appendix 11 – Insurance Certificates

(to be provided once project is implemented)

Appendix 12 – Kittiwake Business Plan

KITTIWAKE PROJECT



Grand Cayman, CAYMAN ISLANDS

An Initiative for Tourism Development

TABLE OF CONTENTS

Executive Summary - Kittiwake Project Overview

Project Team

Tourism Impact & Benefits

Environmental Impacts & Considerations

Planned Sites for Sinking

1 - Executive Summary

Kittiwake Project Overview

Kittiwake (previously referred to as Shipwreck City), the brainchild of the Watersports Operators of the Cayman Islands Tourism Association (CITA), is an active project conceived in 2000. Over 5 years in the making, the project received the green light to go ahead, based on support from the Minister of Tourism and Leader of Government Business, the Honorable McKeever Bush in 2001, and further supported by the Minister of Tourism and Environment, the Honorable Charles Clifford in 2005.

As originally conceived, Kittiwake was a multi-year project that envisioned the sinking of 5 ships in the waters of the Cayman Islands. Currently, the project is limited to the sinking of a first vessel; with additional ships possible based on the results, return on investment and analysis of benefits before the first ship. The project has been created to stimulate and invigorate tourism to the Cayman Islands, creating a new product development initiative that will help to increase visitor interest in visiting our islands. Cayman has long been renowned for its underwater beauty, shallow reefs and deep walls; however our existing marine based product is mature. The impacts of Kittiwake will provide positive benefits to all sectors of not only tourism providers' on-island, but suppliers to these partners as well. In addition, the project has positive environmental impacts, by sinking 'artificial reefs', the Cayman Islands can expect some relief to the most popular dive & snorkel sites that are currently visited frequently. The project incorporates both increased tourism arrivals and additionally addresses several concerns for our Marine Environment.

Cayman boasts, and well deservedly, being a world-class destination, always rated as 1 of the top 3 destinations in the world for divers and snorklers to visit. In the Caribbean, and perhaps worldwide, Cayman has always been a leader in the creation and preservation of our environment. Examples such as Marine Parks, Environmental zones, Replenishment zones, Permanent moorings and new marine Conservation laws in 2003 have shown the world Cayman's care and concern for our environment.



In tourism, we have strong relationships between the private sector and Government's Ministry & Department of Tourism, creating a dynamic team that markets our islands well. So well in fact, those visitors have come many times over the past decades to visit our wall, reefs and of course Stingray City. With declining tourism both here and worldwide, and the fact that divers & snorklers have many new destinations to visit, Cayman has to fight harder than ever to attract both new visitors here and to create new products to

encourage repeat visitors to return.

In putting these two factors together, tourism and the most positive environmental impacts possible, Kittiwake was conceived, a project resulting in the creation of unique artificial reefs. New product development in the marine world has not been achieved in Cayman in any magnitude since the creation of Stingray City, and Stingray City created the #1 dive and snorkel attraction in the world! Great news for our local businesses, but as a 20-year old product, along with our reefs & walls, millions have been there already, enjoyed, but done it. The sinking of a ship(s) (Shipwrecks and Reefs are the #1 rated attraction for divers and snorklers worldwide) will give Cayman the much needed boost to attract new visitors to come and visit, or to visit us once again.

The success of shipwrecks over the past decade in Canada, the US, Australia, Cayman Brac, New Zealand, the Florida Keys, Bimini and more have all shown substantial increases to tourism in these geographic regions, directly related to the wrecks being available as dive and snorkel sites. As such, many visitors will choose to visit the wrecks as their preferred choice of the tour or site that they select. The impact of this will provide some relief to our natural reefs, particularly in the areas nearest Georgetown and to Stingray City/Sandbar, which support the greatest number of diving and snorkeling tours today. The benefits of being able to attract new visitors and allow them to visit a new product, while reliving some stress from our natural environment, will be positive for everyone in the Cayman Islands.



The selected site for the first ship is off the West side of Grand Cayman. This site is a sand bottom, making it a natural site for an artificial reef. The close proximity to town will allow dive operators, snorkel tours including tours for cruise ship passengers, and submarines to take visitors to the wreck. The ship will create a new tour for our local businesses, and a new product for visitors to enjoy.

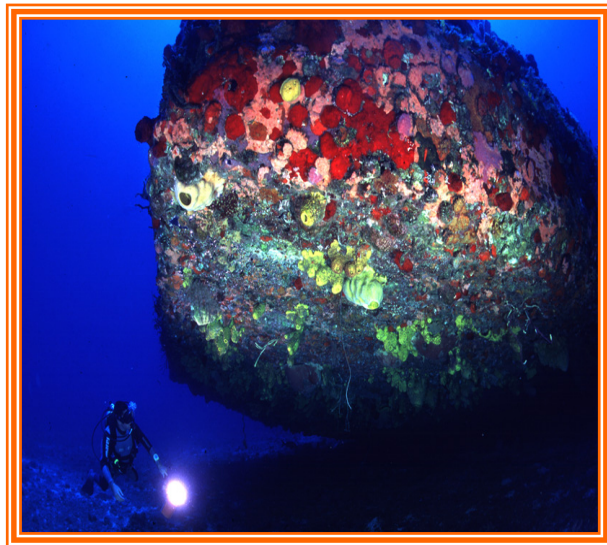
Based on parameters provided by the Department of the Environment, the ships being sought for this project are large vessels, 250 feet plus in length & have a steel hull construction. The size of the vessels will allow multiple operators to be on the ship at any one time while providing a structure that should stay put and be an attraction for 70 years plus. Our current shipwrecks including the Oro Verde, Balboa, Cali, Doc Poulson, Nicholson, Kirk Pride, Carrie Lee and other historical wrecks, have all proven to be successful in attracting visitors, and #1 requested sites to visit. Kittiwake, much like the Capt. Keith Tibbet's model, will be focused on large, substantial, historical relevance and long-term monuments to attract visitors, and create a sustainable product for many generations to come.



The Wreck of the Balboa



The Wreck of the Cali



Fuel barge Wreck at 12-mile bank



The Carrie Lee Wreck

Examples of some of the existing Shipwrecks of the Cayman Islands, shown above and below.



The Doc Poulson Wreck



Captain Keith Tibbetts Wreck

The marine environment draws a huge percentage of our visitors to our islands as stay-over tourists and also as cruise ship arrivals for the day, and as with our land-based attractions, enhancements and new offerings need to be created from time to time. Both the Cayman Islands Government and its private sector businesses are working hard to create a balanced sustainable tourism environment to invigorate our economy and support local businesses.

Kittiwake will not only benefit the watersports operators on the islands, but will increase tourism overall, thereby supporting all other tourism sectors such as hotels and condos, restaurants & transportation, and the ripple down effects to retailers and local suppliers of all of these industries. Based on similar projects in the US, Canada, and Cayman Brac, a substantial increase in tourism can be reasonably projected for a period of time.

In support of this effort, a portion of the Department of Tourism funds for the past number of years that were earmarked for advertising have been redirected towards Kittiwake product development as seed funding to kick-start the project. The Ministry of Tourism and the CITA each invested \$50,000. into the project to give it some initial capital, and to show our support. The additional funding for the ship has come through continual support from the DOT advertising (dive) budget, private sector and sponsorships. The media exposure that Cayman will receive in news, TV, documentaries, research projects, magazines and such will provide tremendous exposure for the islands, the value of which will more than offset the initial investment that has been contributed by Government and private sector funding.

The Kittiwake project team is actively working to secure our first ship, of substance, historical interest, and intend to sink her in 2007.

Top compelling reasons to move forward with Kittiwake.

1. Our Industry partners are demanding new product from Cayman
2. Kittiwake will generate more new stay over arrivals than any other singular project on the table
3. The most popular attraction/tour offered in Cayman today is Stingray City/Sandbar. By creating a new 'Shipwreck attraction', relief will be given to the stressed environment at Sandbar, through an exciting new location to dive/snorkel on. This concept of distributing the visitors to a variety of locations is supported by DoE.
4. Kittiwake will benefit ALL Industry sectors, and is supported by our 180 + members of CITA, our Media Partners, the Cayman Islands Department of Environment, Department of Tourism, Port Authority, Customs, Public Works and several other Government bodies that will be involved in the project.
5. Cruise Ship Partners will have a fantastic new series of tours to sell for divers & snorklers
6. Media exposure will be greater than any advertising budgets that we can afford, putting Cayman on the map again as #1
7. As an aggressive marketing and product development campaign, Kittiwake will once again position Cayman as a leader, and show how our combined government & industry dynamics can create a position of re-energizing ourselves.

“He Hath Founded It Upon The Sea”



2 – KITTIWAKE Project Team

The Kittiwake project team is comprised of many individuals, from private sector, Government Departments and consultants. The individuals listed following are currently on board and active in assisting day to day or on periodic or consulting basis for the project. The personnel that are driving, supporting or assisting in this project incorporate individuals with many years of business experience, knowledge of the Cayman Islands, and all appropriate Government liaisons that are affected by the project. The combined knowledge of the team members covers a broad scope to ensure project success and implementation in a timely manner. Primary contacts for the identification, selection and acquisition of ships:

Maritime Administration (USA) MARAD

Zoe Washnis
Marine Industrial Specialist
Department of Transportation
MARAD/Navy Artificial Reef Program Coordinator
Maritime Administration
400 7th Street SW Room 2122
Washington, DC 20590
Phone: (202) 366-0270
Fax: (202) 366-3954
Also: Shaun Ireland
Phone: (202) 366-5787
1 880 99-MARAD 996-2733

Contacts, Companies & Agencies involved in the project:

Cayman Island Tourism Association (CITA) KITTIWAKE Project Office
Cayman Islands Tourism Association (CITA)
Phone: (345) 949 8522
Fax: (345) 946 8522
Email: ken@cita.ky
www.cita.ky

KITTIWAKE Project Manager
Director, CITA Watersports Sector
Nancy Easterbrook (CITA)
Phone: (345) 946 5658
Fax: (345) 946 5659
Email: divetech@candw.ky

Cayman Islands Shipping Registry (Ship Surveys – consultant to DoE)

John Reynolds, Marine & Ship Surveyor (Anthony Gladwell)
Third Floor, Elizabethan Square
PO Box 2256 GT
Grand Cayman, BWI
Phone: (345) 949-8831
Fax: (345) 949-8849
cisr@candw.ky

Port Authority of the Cayman Islands (Clearance, markers & site approvals)

Mr. Paul Hurlston (Mr. Clement Reid – Assistant Director)
Director of Port Authority & Receiver of Wrecks
PO Box 1358 GT
Grand Cayman, BWI
Phone: (345) 949-2228
Fax: (345) 949-5820
Also: Clement Reid

Collector of Customs (customs clearance)

Mr. Carlon Powery
PO Box 898 GT
Grand Cayman, BWI
Phone: (345) 949-4579
Fax: (345) 945-1573

Department of the Environment (Cayman)

Scott Slaybaugh, Assistant Director
Cayman Islands Department of Environment
PO Box 486GT
Marco Giglioli Building
Grand Cayman, Cayman Islands
(345) 949-8469
(345) 949-4020
Scott.slaybaugh@gov.ky

General Contractor: (Remediation and Towing)

Timothy Mullane, Owner
Dominion Marine Group, Ltd.
PO Box 152
Chincoteague Island, Virginia
23335
USA
(757) 544-5614
(757) 675-0301
(757) 336-1768 Fax
tmullane@dominionmarine.net

Sub Contractor: (Contracts & Safety including OSHA)

Edward Dullaghan, Principal Scientist/Project Manager
URS Corporation
277 Bendix Road, Suite 500
Virginia Beach, VA
23452
USA
(757) 499-4224
(757) 473-8214 Fax
Ed_dullaghan@urscorp.com

Sub Contractor: (Hazardous Materials)

Steven Avery, Vice President
EC&C
4434 Gulls Quay
Virginia Beach, VA
23455
USA
(757) 464-0044
(757) 464-5235 fax
(757) 650-2407 Cel

Contractor: Sinking

Mr. John MacKenzie
West Indian Marine Ltd.
PO Box 31194 SMB
Grand Cayman, Cayman Islands
(345) 945-7126
(345) 945-0609 fax
John.mackenzie@ugland.com

3 - Tourism Impact & Benefits

The benefits of the Kittiwake project, as discussed in the Executive overview, will be substantial to all members of Tourism businesses in Cayman. These sectors include over 180 members of the CITA, and have a spin off effect to other business members of the Cayman Islands. The more successful we are at attracting visitors to our island, the healthier our businesses become, and the more we spend on boats, repairs, supplies, retail products, employment, government fees and the like.

Reasonable estimates of divers and snorklers that have visited a ship such as the Oro Verde, that has been a 20 year+ attraction for visitors, can justify a reasonable estimate of over \$2 million a year as a contribution to the overall economy, in direct revenue to hotel rooms and diving & snorkeling markets. This does not incorporate air, taxis, restaurants, transfers, retail and other expenditures of visitors that stay on our island. This is not a revenue source to KITTIWAKE or new to the revenue stream, but just a substantiation of value to the economy in general.

In studies of other projects, the results are always the same – Shipwrecks attract both media and visitors, and are rated as #1 in reader surveys and polls from diver magazines as to a top choice of where they would like to visit.

Cayman is a mature destination, we've done almost everything right, and as such, we have attracted a huge number of visitors here over the past several decades. This has been positive in the past, but we are suffering from a declining market, and a declining market share, and need NEW PRODUCT DEVELOPMENT. The Kittiwake initiative will provide the boost that Cayman needs to attract both new and repeat business to our islands.

In all studies that the project team has reviewed, the increase in any geographical region that has sunk ships has been phenomenal. A realistic increase in growth for most regions has been 20%; however, with Cayman and our already prevalent presence in the marketplace, this increase may result in somewhat less than a 20% improvement, but will have a substantial impact on the business of tourism to our islands.

Cayman has always been known for its forward thinking and aggressive marketing campaigns, relationships with travel partners, advertising and branding initiatives, environmental health and conservation efforts, and Kittiwake once again, being the biggest and largest effort of its kind, will re-establish the Cayman Islands as a world leader. In these times of economic survival, this project is paramount to re-stimulating growth in our tourism sector.

4 - Environmental Impacts/Considerations

World-wide, the sinking of artificial reefs has been an ongoing process for many years. At present, many countries have already or are considering this process as an initiative to stimulate tourism in their communities. Some of the more recent projects are listed following for reference. In all of these projects, the final impact has been positive to boost revenue flows into the local community.

- ❖ Yukon, San Diego, CA, USA
- ❖ Swan, Quebec, Canada
- ❖ Spiegel Grove, CA, USA
- ❖ USS Monitor, NC, USA
- ❖ Barracuda Reef, NC, USA
- ❖ HMCS Saskatchewan, Nanaimo, Canada
- ❖ HMCS Mackenzie, Sidney, Canada
- ❖ G. B Church, Wet Coast, Canada
- ❖ HMCS Restigouche, Acapulco, Mexico
- ❖ Over 100 ships since 1969, SC, USA
- ❖ HMCS Chaudriere, Sechelt Inlet, BC
- ❖ Pratte's Reef – CA, USA
- ❖ Vandenberg, Key West, FL, USA
- ❖ HMCS Gatineau, Kingston, Canada
- ❖ Over 40 ships in NJ, USA
- ❖ And more ... worldwide

There are both local and international considerations that must be taken into account for the sinking of ships. International conventions for the disposal of ships from the US and the UK require strict adherence to the Basel Convention laws, Asbestos laws, Consumer health laws, waste laws, and the like. Ships that are available for the purposes of artificial reefing are available from a number of sources, including Navy's world wide (primarily the US, Canada and UK) as these countries comply with International conventions. Cargo ships, freighters and the like, are less likely to have sufficient information available on their ships, than navy ships, and as such, the Kittiwake Project Team is focusing its efforts on naval vessels that can be quantified in terms of work effort to make them "ready to sink".

The Cayman Islands generally follows the Environment Canada guidelines for the preparation and sinking of vessels, as Canada had provided documentation that has been reviewed by the CI DoE, and accepted as a high standard for the preparation of vessels to be used as artificial reefing projects in late 2003, the US has complied a new EPA "Best Management Practises" for Artificial Reefing projects. We will review this documentation once released and believe that it will be of a high standard and appropriate for use in the Cayman Islands. There may be modifications to any foreign practises for the preparation and cleaning of ships that must be applied to the Cayman Islands, including brown and bilge water flushing and hull cleaning to insure no foreign marine life is introduced to the Cayman waters, to name a couple. Our liaison for all Environmental issues is Scott Slaybaugh in the Cayman Islands DoE offices.

The intention of the KITTIWAKE project team is to purchase and clean the ships to both an environmental standard and a diver readiness standard that meets the Department of Environment specifications. As the DoE is a part of the project team, acting in a consulatory role, they have been and will remain the driving force behind the requirements in this area.

Additionally the DoE is considering the zoning of the wrecks, to ensure that they are protected as needed and used as intended. This could cover areas including marine park zoning or scientific research sites, which would allow special rules and regulations to apply to them. One area of concern is fishing on the wrecks, as fish tend to converge on ships, and make ideal fishing grounds.

Issues involved in the acquisition of each ship and the subsequent sinking of each ship include the following task items:

- ❖ Ship Identification
- ❖ Ship Acquisition
- ❖ Ship inspections & preparing a 'cleaning document'
- ❖ Bids to evaluate cleaning/towing costs
- ❖ Selection of a 'cleaning' port/location
- ❖ Towage of vessel to the cleaning location
- ❖ Cleaning to Environmental standards as approved by DoE
- ❖ Diver preparedness (cut-outs, float sum cleaning, etc. for diver safety)
- ❖ Port Authority approvals (total clearance to surface & Warning surface Markers based on sinking location)
- ❖ Final Inspections from DoE & KITTIWAKE Project team
- ❖ Towage to Cayman Islands
- ❖ Sinking plan and contracted work to sink the ship
- ❖ Approvals from Public Works for explosives
- ❖ Approvals from Customs to import a ship duty free
- ❖ Approvals from Port Authority to take possession of the ship as the 'Receiver or Wrecks'
- ❖ Insurance through the entire process
- ❖ Marketing, PR and sinking process

In layman terms, all ships must be cleaned to remove all pcb's, asbestos, hazardous waste, greases, oils, lubricants, fuels and salt water from bilges, etc. to ensure that the ship, once arrived in Cayman, will not create any environmental hazards to our islands. This will be accomplished through the thorough cleaning of the ship as set out in the guidelines provided by expert advisers and the Department of Environment and outside knowledgeable sources.

Bilge water flushing and hull cleaning must also take place to ensure that organic species are not imported to the waters of the Cayman Islands that are not indigenous to here and could result in the introduction of a species for which there are no natural predators.

Additionally, to prepare a ship for diver readiness, the ship must have a 'friendly environment' for divers and snorklers to visit. This imposes additional work requirements, that are not

environmental issues, such as cut-outs for exit points to the ship (plan your dive and dive your plan), removal of electrical cabling and wiring, removal of potential float sum articles, identification on the ship as to where you are at (signage), and other factors to ensure a safe 'product' for our visitors, staffs and businesses.

The DoE has been on board as a consultant and a regulatory body for the past 4 years, and they will remain on the team throughout its completion.

There are positive environmental impacts of the Kittiwake project that may be attained, our goal is to create a new product that will stimulate tourism; however, it is a fact that several areas in the Cayman Islands are over-populated, and this creates stress and potential damage to the natural marine resources that are existent here. KITTIWAKE has the ability as a new 'attraction' to divert some of the pressure from cruise ship visitors and stay-over tourists to visit an alternate site. The most stressed areas of our reef systems are at Stingray City / Sandbar and the dive and snorkel sites nearest the Georgetown Harbour area.

It is near the Georgetown harbour area that we will sink our first ship in the Kittiwake Project.

5 - Planned Site for Sinking

The Kittiwake Project encompasses all areas of the Cayman Islands. The project intends to include the current wrecks that are available for visitation, in addition to the new wrecks that will be sunk, to provide a broad scope and sustenance to the overall project. Current wrecks include, in Grand Cayman, the wrecks of the Oro Verde, Balboa, Capt. Keith Tibbetts, Cali, Doc Poulson, Nicholson, Kirk Pride and Carrie Lee. Although many of these wrecks will not be incorporated into the general financial stream of the project, it is anticipated that the Capt. Keith Tibbetts, sunk as an artificial reef in Cayman Brac 4 years ago, will become a part of Kittiwake. The wreck is still a major draw to diving tourism in the Brac, and incorporated into the overall marketing plan, this wreck could become rejuvenated, and provide a source of revenue to the overall project, and a boost once again to the diving and snorkeling markets in the Brac. The Capt. Keith Tibbetts was not sunk as a snorkel site, which the Kittiwake would be, and as such will expand the marketplace even more.

For the new ships to be sunk, the following outlines the anticipated sites for the wrecks. These sites were selected by the criteria of:

- a) Appropriate depths and perimeters to existing natural reefs
- b) Accessibility to the most number of businesses
- c) Diversity to allow all businesses access and participation in the KITTIWAKE Project

The selected sites are as follows:

- ❖ 1 - West side, Grand Cayman off Treasure Island Resort, Rhapsody site, rubble area
- ❖ 2 - Jackson Point area, South Sound, sand flats

- ❖ 3 - NW Point, sand flats – selected site for the Kittiwake
- ❖ 4 - East End, 19 19.690N / 081 04.789W, off shore from the public play field in the town of East End, sand flats.
- ❖ 5 - Little Cayman, site to be determined yet

The identified sites have all been researched and found to be appropriate for the sinking of a ship. Each site and each ship will have to be matched to the appropriate size, allowing distance perimeters, as established by the DoE, to be maintained between the artificial reefs/ships and the natural reefs. DoE has established parameters as to the distance from natural reefs and the wrecks that must be maintained for protection of the natural reefs that exist.

The planned sinking sites, as identified, will all had extensive underwater surveys completed that guarantee compliance with DoE regulations and rules. As the site in Little Cayman has not yet been identified, once done, this site will also be surveyed to ensure compliance with DoE requirements.

6 - Financing Costs & Sources

The Kittiwake Project has received very strong support from Government, including the Ministry of Tourism & the Environment and the Departments of both Tourism & the Environment, in addition to CITA member private sector including donations and funding.

The Government has committed funding to the extent of \$50,000. (CI\$) as seed money to initiate the project.

The private sector has also stepped up to the project with CITA committing \$50,000 of our own funds to the project, as we appreciate the importance of new product development. As such, the following commitments are in place to ensure the success of completing the first ship, and making the project happen.

- The watersports members of the CITA have voted upon and accepted the concept of paying a per visitor fee for each diver/snorkler that visits the wreck(s), equivalent to \$1.00 (US\$) per visitor; a fee will also be paid for submarine visits
- The Cayman National Watersports Association members have generally agreed to the same visitation fee;
- The Land & Sea Coop members have unanimously agreed to a per visitation fee.

This represents the private sector, and shows the support for the project overall from the private sector. We will support Kittiwake by taking a portion of our revenues, and allocating it back to the project, at approximately \$1.00 (US\$) per visitor that dives, snorkels, or visits the wreck in a submarine.

It is reasonably estimated that there will be in excess of 200,000 visitations per year to the ship(s) and will guarantee an on-going revenue stream to allow the project to continue. If we include a part of all cruise arrivals, numbers could be more substantial. Cruise arrivals plus stay-over tourists are currently at about 2,000,000 per annum.

A portion of all funds collected will be set aside for marine conservation, maintenance of the ships, moorings and the like.

This environmental fund is a first time effort in the Cayman Islands from the Private Sector to create a source of revenue that will be directly used to maintain, sustain and improve our marine resources, and provide a source of funds that DoE can use as needed for projects that arise.

Appendix 13 – Cayman Islands Customs Exemption

NOV-25-03 TUE 17:30

CAYMAN IS TSM ASSOC

FAX NO. 4-1522

P.01

Telephone: (345) 949-7900
Facsimile: (345) 949-8650
Telex: CP 4260



Portfolio of Finance & Economics
Government Administration Building
George Town, Grand Cayman
Cayman Islands

Ref: FIN/CUS/4

November 10th, 2003**CAYMAN ISLANDS**

Ms. Nancy Romanica
Cayman Islands Tourism Association
P.O. Box 31086 SMB
Grand Cayman

Dear Ms. Romanica:

RE: EXEMPTION OF IMPORT DUTY
SHIPWRECK CITY PROJECT

Reference is made to your requests for a exemption of Import Duty.

Cabinet advised that approval should be given for an exemption of import duty assessed at a rate of 10% for five vessels each valued between CI\$100,000-CI\$200,000 which are to be used in aid of The Shipwreck City Project, whose value is between CI\$500,000-CI\$750,000, in conjunction with providing final approval to allow the project to progress. The total approximate value of Import duty for five vessels assessed at an import duty rate of 10% is between CI\$10,000-CI\$20,000 per vessel.

Yours faithfully,

G. A. McCarthy, O.B.E., J. P.
Financial Secretary

GAM/scm

cc: Collector of Customs
Accountant General

Appendix 14 – Cayman Islands Department of the Environment Guidelines



Department of Environment
PO Box 486 GT
580 North Sound Road
Grand Cayman, Cayman Islands

29 July 1999

Mr. Rod McDowell
C.I. Watersports Operators Assoc.
PO Box 31495 SMB
Grand Cayman

RE: Recommendations for Site Selection, Vessel Selection, Preparation, Sinking, and Maintenance for the Shipwreck City Proposal

Dear Rod:

Further to our initial meeting of July 27 regarding the Shipwreck City proposal, I would like to summarise the Department of Environment's role in the process and offer our recommended guidelines.

1. General Policy on Vessels Used as Dive Sites:

DOE has no inherent objection to the use of vessels as dive sites as long as the vessels do no harm to the natural environment and is not a safety hazard to divers. Vessels on the sea bed have the potential to damage sea life and habitats by the release of toxins and by crushing reefs when moved by storms. In Cayman's waters with abundant coral reefs there is little benefit to the environment by adding artificial reefs; therefore shipwrecks may only be viewed as an economic enhancement in a total cost/risk/benefit analysis.

Thorough planning is required for numerous aspects of the proposal including: site selection, vessel selection, cleaning the vessel for pollutants and diver access safety, method of sinking, and long term monitoring and maintenance. Each aspect is essential, and failure to comply with any one of these aspects is cause to reject the proposal. Details of DOE's guidelines for each aspect are given below.

2. Role of DOE

The mission of the Department is simply to conserve and protect the natural environment. Our roles in this proposal will include offering technical advice to the Ministry of ACE&NR on environmental impacts; recommendations for approval / rejection of a Coastal Works License; monitoring and possible oversight of sinking operations. In addition, with the recent passing of the *Merchant Shipping Law (1999)* which enables the *Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (1972 / Protocol*

(345) 949-8469 / 949-4020 fax
email: doescott@candw.ky



1996), a permit must be issued by the Department of Environment, signed by the Director, which is separate from the Coastal Works License. The Shipwreck City proposal will have to meet criteria established in the Merchant Shipping Law to the satisfaction of the Director of Environment.

DOE will endeavour to complete all portions of our work in a timely manner. We would emphasise that, given the numerous steps required and the importance of each step, that the process will not be rushed in order to meet any deadline. It is critical that the job is done right. In addition, DOE is faced with a pressing work schedule, a reduced staff level, and we did not include Shipwreck City in our 1999 Department Objectives. Having said that, please be assured that we respect the importance of your schedule and will accommodate if at all possible.

The sinking of the Russian Frigate cost the Department about \$6000. The Department is not in a position this year to finance any part of the operation apart from the cost of staff wages.

3. Site Selection

Selection of an appropriate site is probably the most critical aspect of the operation. The ideal location for a wreck would have the following characteristics.

- Proximity to coral reefs. The wreck should be as far from coral as possible with a minimum distance of 500 feet. This would reduce the potential for destruction of coral reefs if the vessel moves, as was the case of the Ora Verde.
- Depth. The sea bed should be as deep as may be safely dived. Greater depths mean a reduction of wave energy to move or break the vessel.
- Protection of fish stock. Fishing must be prohibited on the wreck. Fish are attracted to wrecks and the potential for over-fishing a site is greatly increased. Allowing fishing on the site may also lead to increased conflict between diving and fishing. Similar conflicts have resulted in recommendations to reduce areas of the Marine Park Zone and to prohibit diving from other areas. The best alternative is to select a site in a protected area.
- Shelter. The site should offer protection from storms to reduce the likelihood of moving and breaking. Bearing in mind that once the ship is on the sea bed it is there forever, it is unlikely there is any location, apart from the Cayman Trench, that can offer real storm protection.
- Contour. The sea bed should be as flat and uniform as possible. The sunken vessel, Carrie Lee, at a depth of 150 feet has migrated down the slope for a significant distance due to storm energy.
- Substrate. Sand is the only option.
- A survey of the area proposed is required and should illustrate the parameters above for a radius of 500 feet from the vessel's footprint.

4. Vessel Selection

- Construction: Steel hull is recommended. The Russian Frigate was a combination of steel and aluminium and galvanic corrosion is contributing to the rapid deterioration.
- Condition: Eventually the wreck will deteriorate no matter what the condition at the time of sinking. However, the better the condition the longer its value as an attraction.
- Size: Small vessel are light with thinner plating and are likely to move and break apart more quickly than larger vessels then travel farther. 300 feet is a preferred size as long as a site is selected to accommodate it. A minimum size would be 120 feet.

- Configuration: The greater the surface area of the vessel contacting the sand the more resistance to moving. The interior should be conducive to safe access (i.e. large open spaces, good ambient lighting, free of obstructions.)

5. Vessel Preparation:

Information on cleaning the vessel for removal of toxins and potential pollutants is attached. Further information may be accessed from the website (and link sites) found at, http://www.artificialreef.bc.ca/research/cleanup_standards.html. This information will serve as a general guide. Specific instructions would be given upon vessel inspection. Additional materials not mentioned in the document may include items which may eventually become detached from the wreck and become loose debris, such as wooden panelling, plastic floor covering, foam insulation, etc. The vessel must be inspected by DOE and a qualified surveyor. Access to all parts of the vessel will be required including tanks, bilge spaces, and compartments. Tank samples may be required for analysis to determine content. The inspection process may be expedited by having inspection plates, floors, etc. ready for removal prior to the arrival of the inspectors. All areas must also be made safe for inspection such as air quality, ladders, floors, etc.

The vessel must also be prepared to ensure safety for divers. CIWOA is aware of risks involved and should be able to develop a suitable plan. Factors to consider should be entanglement, sharp protrusions, entrapment, navigation, and lighting.

A lesson learned during the Russian Frigate sinking was that the entire ship must be cleaned and made safe. With the best of intentions areas were blocked to prevent diver access. Areas below the barriers were cleared of hazardous materials, but were not cleared of debris, nor were hatches secured. In hind-sight this was a mistake. As long as the vessel remains intact divers are limited to prepared areas. Unfortunately, as the ship breaks apart, divers have increasing access to unprepared areas. It will be required that the entire vessel is prepared for any future wrecks.

6. Sinking Operations Plan:

A detailed written plan agreed by CIWOA, the contracted party sinking the vessel, and Government, would be appended to the Disposal at Sea License. The plan must include: the qualifications of the contracted party, the method of sinking, provisions for communication between the parties involved, security, safety, and sequence of events with estimated schedule.

7. Maintenance Plan:

CIWOA must provide a detailed written plan for the perpetual upkeep of the wreck. Serious foresight must be given to the long-term consequences both to the environment and for diver safety. (Again, the Russian Frigate provides examples of areas in need of improvement as to-date no one has taken responsibility to correct problems.) Agreement must be reached for on-going responsibility of maintenance. If the wreck moves toward coral, then the wreck may be restrained with anchors or barriers. If a safety problem is identified, someone must correct it. If (when) pieces of the wreck fall off they must be removed from the area before coral is damaged.

8. Promotion and Advertisement of the Project:

The decision as to how and when the project is marketed is not an area that DOE will advise on. We trust that all publicity will be truthful and not speculative. At this point it would be accurate to state that ExCo has given favourable consideration to the proposal subject to

meeting conditions stated above, and that the Department of Environment will be advising Government on environmental impacts and is examining the proposal for compliance with requirements for permits. It should be understood that there is no guarantee the proposal will be approved, therefore any advanced publicity or costs are the risk of CIWOA and will not influence the decisions of the Department.

We prefer that the proposal is not marketed as an environmental enhancement. We also prefer not to be depicted as a partner in the project. It is fair to say we are and will work with you (as we do with all development applicants), but strictly speaking, DOE is a regulatory agency and should be objective and unbiased.

Feel free to contact me if clarification or further information is needed.

Kindest regards,



Scott Slaybaugh,
Acting Director of Environment

Cc: Permanent Secretary, ACE&NR
Permanent Secretary, TCT&W

APPENDIX 15 – Coastal Works License Application / Provisional Approval



GOVERNMENT ADMINISTRATION BUILDING
GRAND CAYMAN, CAYMAN ISLANDS
TEL: (345) 949-7900
EXT. 2458
FAX: (345) 945-1746

Cayman Islands Government

Ministry of
Tourism, Environment, Investment & Commerce

15 November 2006

Department of Transportation
Maritime Administration
Ship Disposal Program Office (MAR 610.3) Room 2122
Attn: Zoe Washnis
400 Seventh Street S.W.
Washington, DC 20590

Dear Ms. Washnis,

RE: **Provisional Approval - Coastal Works Licence for the Kittiwake as an artificial reef**

Please be advised that a coastal works licence for the approval of the sinking of the ex-USS Kittiwake off the coast of Grand Cayman is currently pending final approval. However, the Ministry of Tourism, Environment, Investment and Commerce through the technical guidance of the Department of Environment (DoE) advises that provisional approval for the issuance of such a licence (at latitude 19.21.761N-19.21.732N, Longitude: 081.24.162W-081.24.119W) is hereby granted subject to DoE conditions subsequently being met and formal approval being granted by the Cabinet of the Cayman Islands.

I trust that this provisional approval of a coastal works licence satisfies MARAD requirements.

Respectfully,

A blue ink signature, likely of Gloria McField-Nixon, written in a cursive style.

Gloria McField-Nixon
Permanent Secretary and Chief Officer



Department of Environment
PO Box 486 GT
580 North Sound Road
Grand Cayman, Cayman Islands

3 February 2006

Nancy Easterbrook
Ship Wreck City Project
Cayman Islands Tourism Association
PO Box 31086 SMB
Grand Cayman

RE: Coastal Works Application for Shipwreck Reef

Dear Nancy,

An application form for a Coastal Works License is attached. Since the sinking of ships for artificial reefing is a rare occasion, I'm afraid there are no forms that are completely appropriate to your needs. The nearest available is for dredging and excavation, which is used for most major projects proposed on submerged Crown lands. A significant portion of the information requested may be marked n/a, and there will be much to submit which is not requested on this form such as the detailed sinking plan, the perpetual maintenance plan, diver safety provisions, and hazardous materials removal to name a few.

The purpose of the application form at this stage is to simply get the process moving and allow the Ministry of Tourism, Environment, Investment and Commerce to solicit advice from pertinent agencies such as Port Authority, Merchant Shipping Authority, Dept. of Tourism, Planning Dept., Public Works, the Investment Bureau, Dept. of Environment and others. Typically, once the Ministry has chosen agencies reviewing the proposal, there will be a joint meeting of representatives to decide on the information required, to share their perspectives, and to meet with the applicant to discuss options for the project. Many of these agencies have already been involved to some degree, so the process should not be too onerous. Once the list of information is agreed we will want to establish a reasonable timeline for completion of tasks in order to facilitate our scheduling of reviews.

You may omit the notification requirement for your project as it will not affect adjacent properties. Likewise you may omit the land registry map. The Ministry will advise whether or not notification in the local press is required.

Please let me know if I may be of assistance.

Scott Slaybaugh
Asst. Director - Operations
Dept. of Environment

(345) 949-8469 / 949-4020 fax
email: scott.slaybaugh@tc.gov.ky



West Indian Marine Group

Mrs. Gloria Mc Field-Nixon
(Acting) Permanent Secretary
Ministry of Tourism, Environment, Investment and Commerce
Government Administration Building
Cayman Islands Government
Georgetown, Grand Cayman
Cayman Islands

30th June, 2006

Dear Mrs. Mc Field- Nixon;

RE: Application for Coastal Works License - ex-USS Kittiwake

Please find enclosed our application to the Ministry for a coastal works licence covering the approval for the sinking of the ex-USS Kittiwake. Attached is a collection of supporting documentation and reference material together with all relevant details which is enclosed for your review. We appreciate that this project has been on-going for a number of years and that the Ministry and Department of Tourism as well as the Department of the Environment, the Port Authority, the Shipping Registry, Customs and the Cayman Islands Tourism Association have all been actively involved in the progress, support and decision making of the numerous aspects of this important project.

We have conducted diving site evaluations, and received input from many other sources, in an effort to identify the best location for the sinking of the USS Kittiwake which will meet both the business and environmental objectives of this project. The location which has been identified for this project is just North of the Port Authority harbour boundary, close to the area known as the Rhapsody Trench. This location does not interfere with the activities or the traffic in and around the Port of George Town. The location affords us a number of opportunities to meet the goals, of this project, including:

- In polls and research carried out by the diving industry in the Cayman Islands over recent years, wreck diving was stated as the #1 request indicated by the diving public.
- The wreck site is in close proximity to Georgetown Harbour, guaranteeing the highest possible volume of diving, snorkelling and submarine trips to the attraction for both cruise and stay over tourists;
- Easy access for cruise ship passengers due to the close proximity of the wreck site to the Port and moored cruise ships;
- Trips can be offered by most water sports operators, providing the best possible return to both the private and public sectors;

West Indian Marine Ltd.

PO Box 51104 SMB, Grand Cayman, Cayman Islands, BWI
Tel: 1 (345) 945 7126 Fax: 1 (345) 945 0615

Included in the enclosed documentation is a detailed "Vessel Disposal & Sinking Plan" outlining the sinking methodology proposed by West Indian Marine under this contract. We trust that the enclosed documentation is satisfactory for the purposes of approving the application for this project.

Thank you for your assistance in considering this coastal works application, in order to move this exciting project ahead as a much needed tourist attraction and as a new product for our diving tourism. We look forward to receiving your response and support for this application in due course.

Yours Sincerely,
West Indian Marine Ltd.



John MacKenzie
Managing Director

cc

Mr. Charles Clifford, Minister of Tourism, Environment, Investment & Commerce Ms.
Pilar Bush, Director of Tourism
Mr. Scott Slaybaugh, Assistant Director of the Department of the Environment
Mr. Paul Hurlstone, Director of the Port Authority
Ms. Karie Bergstrom, CITA President
Mrs. Nancy Easterbrook, CITA Kittiwake Project Manager

12th September, 2006

Mrs. Gloria Mc Field-Nixon
Permanent Secretary
Ministry of Tourism, Environment, Investment and Commerce
Government Administration Building
Cayman Islands Government
Georgetown, Grand Cayman
Cayman Islands



Dear Mrs. Mc Field- Nixon;

RE: Addendum #2 to the Application for Coastal Works License - ex-USS Kittiwake

Please find enclosed an addendum to our recent application to the Ministry for a coastal works licence for the approval of the sinking of the ex-USS Kittiwake.

This addendum changes the Agent from West Indian Marine to the Cayman Islands Tourism Association, and retains West Indian Marine as the Contractor. As many questions are outside of the responsibility of West Indian Marine's contract, it seemed appropriate to streamline all communications to the CITA.

Thank you for your assistance and co-operation in considering this coastal works application, in order that we can move ahead with this exciting project.

Yours Sincerely,

Cayman Islands Tourism Association

Nancy Easterbrook
CITA Kittiwake Project Manager

cc Mr. Charles Clifford, Minister of Tourism, Environment, Investment & Commerce
Ms. Pilar Bush, Director of Tourism
Mr. Scott Slaybaugh, Assistant Director of the Department of the Environment
Mr. Paul Hurlstone, Director of the Port Authority
Ms. Karie Bergstrom, CITA President
Mr. John MacKenzie, West Indian Marine



**APPLICATION FOR A COASTAL WORKS LICENCE
FOR DREDGE AND FILL ACTIVITIES
GENERAL APPLICATION INFORMATION**

Name of authorised Agent for licence application (if applicable) <u>CAYMAN ISLANDS TOURISM ASSOCIATION (CITA)</u>			
Mailing Address <u>PO BOX 31086 KYI-1205</u>	Office Telephone <u>949-8522</u>	Mobile <u>916-6326</u>	Fax <u>946-8522</u>
Name of Applicant (Company name and contact person) <u>CAYMAN ISLANDS GOVERNMENT & CITA</u>			
Mailing Address	Office Telephone	Mobile	Fax
Name of Contractor (Company name and contact person) <u>WEST INDIAN MARINE LTD. - JOHN MACKENZIE</u>			
Mailing Address <u>Box 31194 KYI-1205</u>	Office Telephone <u>945-7126</u>	Mobile <u>916-1555</u>	Fax <u>945-0613</u>
Project Name (for multi-family, commercial or public projects) <u>SHIPWRECK EX USS KITTIWAKE</u>			
Location of project (attach Registry Map Extract and Land Register, see items 17 and 18 below): <u>OFFSHORE</u>			
Registration Section	Block	Parcel(s)	
Registration Section	Block	Parcel(s)	
Name and address of Proprietor <u>N/A CAYMAN ISLANDS GOV'T</u>			
Street address/location of project site <u>N/A</u>			
Describe the proposed activity including any phasing. <u>SEE ATTACHED COVER LETTER</u> <u>NO PHASING</u>			
<input checked="" type="checkbox"/> Check here if information is continued on an attached sheet.			
Describe the purpose of or need for the proposed activity including any public benefits <u>SEE ATTACHED COVER LETTER</u>			
Estimated time for completion of works <u>THREE</u> <u>weeks</u> months / years (circle one).			
a. Total volume of material removed from or used to fill the seabed <u>NIL</u> cubic yards			
b. Estimated volume of marl/rock/sand removed or used in filling <u>NIL</u> cubic yards			
c. Estimated volume of peat removed if applicable <u>NIL</u> cubic yards			
d. Quantity of fill remaining on site <u>NIL</u> cubic yards			
e. Quantity of fill removed from site <u>NIL</u> cubic yards. Proposed destination <u>N.A.</u>			
f. Method of disposing of peat or other material <u>N.A.</u>			
Area of Crown property affected by excavation and/or fill activities <u>15,000</u> <u>square feet</u> / acres (circle one).			

Dredge-and-Fill Form (9/05)

11. Quantify the area of each natural community directly affected by the proposed activity. These areas shall be noted on plans (See item 20).

Mangrove NIL square feet / acres (circle one)

Seagrass NIL square feet / acres (circle one)

Hard and soft coral NIL square feet / acres (circle one)

Sand /Hard bottom 15,000 square feet / acres (circle one)

12. State the need and justification for the potential impacts to the coastal system that may be caused by the proposed activity.

13. Describe methods proposed to mitigate project impacts on affected species and the marine environment in general. Detailed plans should be submitted in accordance with items 21, 22 and-23 below.

PROJECT WILL PROMOTE THE DEVELOPMENT OF MARINE HABITAT IN THE MARINE ENVIRONMENT AND WILL NOT AFFECT MARINE SPECIES

14. Detail any available alternatives to the proposed activity on meeting the stated project purpose and any related affects on the coastal system. ALTERNATIVES CAN ONLY BE THE SINKING SITE &

THERE ARE NO RELATED AFFECTS ON THE COASTAL SYSTEM.

☐ Check here if information is continued on an attached sheet.

15. Describe and indicate proximity to all commercial and recreational uses (e.g. fishing, diving, boating, etc.) within the area of impact of the proposed activity. THE PROJECT IS FOR BOTH COMMERCIAL

& RECREATIONAL ACTIVITIES & FOR THEIR BENEFIT.

SEE ATTACHED COVER LETTER

ALL APPLICANTS ARE REQUIRED TO SUBMIT THE FOLLOWING ITEMS AS ATTACHMENTS:

16. Registry Map Extract which must be less than 60 days old. N.A ☐

17. Land Register which must be less than 60 days old. N.A ☐

18. Proof of general public notification placed in a daily local newspaper for one day only for two consecutive weeks. This notice shall give a written summary of the proposed works, and shall conclude with the following words: ☐

"Any person having cause to make comment on this coastal works application should do so in writing to the Permanent Secretary, Ministry of Tourism, Environment, Investment & Commerce, Government Administration Building, George Town, Grand Cayman, to be received within 21 days of publication of this notice." N.A.

The application will not be considered until at least 21 days after the final notice has been published.

19. Notice to all property owners within 500 linear feet from the boundaries of the proposed activity. NA ☐

20. Four complete sets of construction plans and specifications for the proposed activity, certified by an engineer, architect or surveyor. The plans shall include the following:

a. A dimensioned site plan to an appropriate scale showing a plan view of the proposed activity depicting the mean high water mark, the location and volume of proposed excavation or landfill areas, sediment settling areas and associated drainage systems. Identify the boundaries of significant geographical features (e.g., channels, shoals), natural communities (e.g., mangrove, seagrass, coral, hardbottom, sand) within the area of impact of the activity, proximity to special aquatic or terrestrial sites (e.g. marine park, animal sanctuary). NA ☐

b. A dimensioned cross-section and elevation views to an appropriate scale of the proposed activity depicting the mean high water mark, existing and proposed seabed profile with water depths. Identify the boundaries of significant geographical features and natural communities in the area of impact of the proposed activity. N.A ☐

c. A bathymetric survey drawing of the proposed project site is required for all dredging projects. *N.A.* ☐
 Drawings certified by a licensed surveyor shall be provided for all major projects.

d. Details of construction, including materials and general construction procedures and equipment to be used (e.g., construction access, dredging method, dredged material containment, pipeline location). *N.A.* ☐

21. A proposed mitigation plan, containing the location and details of the erosion, sediment and turbidity control measures to be implemented during each phase of construction. The plan should indicate the proposed maintenance, monitoring, and all other measures used to minimise adverse effects to water quality and the environment in general (e.g. Best Management Practices). ☐
SEE ATTACHED

22. A proposed construction schedule and operations plan detailing phasing of project activities. *N.A.* ☐

23. A proposed site rehabilitation plan if applicable. *N.A.* ☐

NOTE: In addition to full-size drawings required in paragraphs 20-23, plans shall be provided on 11-inch by 17-inch paper or an electronic (CAD) version supplied on CD. Additional information may be required for complete evaluation of the application.

24. SIGNATURE(S)

- A. By signing this application form, I am applying, or I am applying on behalf of the applicant, for the licence and any proprietary authorisations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a licence, that work prior to approval is a violation, and any licence issued or proprietary authorisation issued pursuant thereto, does not relieve me of any obligation for obtaining any other required permission prior to commencement of construction. I agree, or I agree on behalf of my corporation/client, to operate and maintain the licensed system unless the licensing agency authorises transfer of the licence to a responsible operation entity.

CAYMAN ISLANDS TOURISM ASSOCIATION
 Typed/Printed Name of Applicant's Agent (If one is so authorised below)
NANCY EASTERBROOK *[Signature]* *SEPT. 12/06*
 Signature of Applicant's Agent Date

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

- B. I hereby designate and authorise the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the licence and/or proprietary authorisation indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorise the above-listed agent to bind me, or my corporation, to perform any requirement that may be necessary to procure the licence or authorisation indicated above.

CITA & CAYMAN ISLANDS GOVERNMENT (SEE ATTACHED)
 Typed/Printed Name of Applicant
[Signature] *SEPT 12/06*
 Signature of Applicant Date

FOR AGENCY USE ONLY

Application received by Ministry Staff:

Cabinet Decision: Approved as proposed ☐

Date of Licence issue:

Royalty: C\$

Receipt no.

Date of Permit issue:

Approved with Modifications ☐

Licence Expiry Date:

Mitigation: C\$

Fees Paid on Date:

Permit Expiry Date:

Received on Date:

Deny ☐ Date:

Other Fees: C\$



West Indian Marine Group

14th November, 2006

Mrs. Gloria Mc Field-Nixon
Permanent Secretary
Ministry of Tourism, Environment, Investment and Commerce
Government Administration Building
Cayman Islands Government
Georgetown, Grand Cayman
Cayman Islands

Dear Mrs. Mc Field- Nixon;

RE: Sinking site evaluation for - ex-USS Kittiwake

Please be advised that West Indian Marine Ltd. has carried out an in water bottom survey of the Rhapsody site at 19.18.842N – 81.23.699W for the sinking of the wreck of the Kittiwake and have found that the bottom topography at this site is unsatisfactory for the sinking of the vessel and for maintaining a secure and stable long term wreck site. The site consists of loose rock and rubble and a number of rock ridges which would not be conducive for the wreck stability to be located on this type of bottom. It is our opinion that the vessel will not rest on a preferred and secure flat bottom in this area and therefore will not result in a stable wreck and the long term structural integrity of the vessels hull will be compromised at this site.

We have identified an alternate site location or for the sinking of the USS Kittiwake, as a more preferred location.

The alternative site is known as North of Sand Chute - site #5 and is located at the following coordinates:

Latitude: 19.21.761N - 19.21.732N
Longitude: 081.24.162W – 081.24.119W
Bottom Composition: Flat Sand
Depths: Stern: 51 feet Bow: 60 feet
Direction from stern to bow: NW to SE

Land Reference: Generally off the West side of Grand Cayman, Seven Mile Beach

Sea Reference: Inwards towards shore from the dive site known as Sand Chute, in the NW bight area

This site is suitable as it offers both good protection from the weather being in the bight at West Bay and on the lee side of the island. The site has a satisfactory depth and generally good flat sand bottom topography for the vessel Kittiwake to rest stably and

West Indian Marine Ltd.

PO Box 51194 SMB, Grand Cayman, Cayman Islands, BWI
Tel: 1 (545) 945 7126 Fax: 1 (545) 945 0613

This site is suitable as it offers both good protection from the weather being in the bight at West Bay off Seven Mile Beach and is on the lee side of the island. The site has a satisfactory depth and generally good flat sandy bottom topography for the Kittiwake to rest stably and securely on the sea bottom. The sand area in this vicinity is quite large, allowing us sufficient space to sink the vessel and range out a four point anchoring system without affecting surrounding reef areas.

Thank you for your assistance and co-operation in considering this new site for approval as part of this coastal works application. We look forward to receiving your favourable response and full support and approval of this site in due course.

Yours Sincerely,
West Indian Marine Ltd.



John MacKenzie
Managing Director

Cc:

Mr. Charles Clifford, Minister of Tourism, Environment, Investment & Commerce
Ms. Pilar Bush, Director of Tourism
Mr. Scott Slaybaugh, Assistant Director of the Department of the Environment
Mr. Paul Hurlstone, Director of the Port Authority
Ms. Karie Bergstrom, CITA President
Ms. Nancy Easterbrook, CITA Project Manager/Director
Mr. Rod McDowall, CITA Watersports Director
Mr. Steve Broadbelt, CITA Watersports Director

Attachment: Anchor placement on the Sinking Site (Chart)

